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UNIVERSITY OF MARYLAND

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June 1, 1944

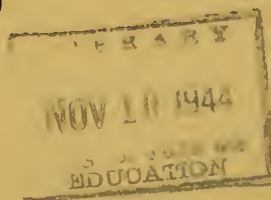
No. 2



THE GRADUATE SCHOOL ANNOUNCEMENTS

FOR THE SESSIONS OF

1944 - 1945



COLLEGE PARK, MARYLAND

UNIVERSITY OF MARYLAND

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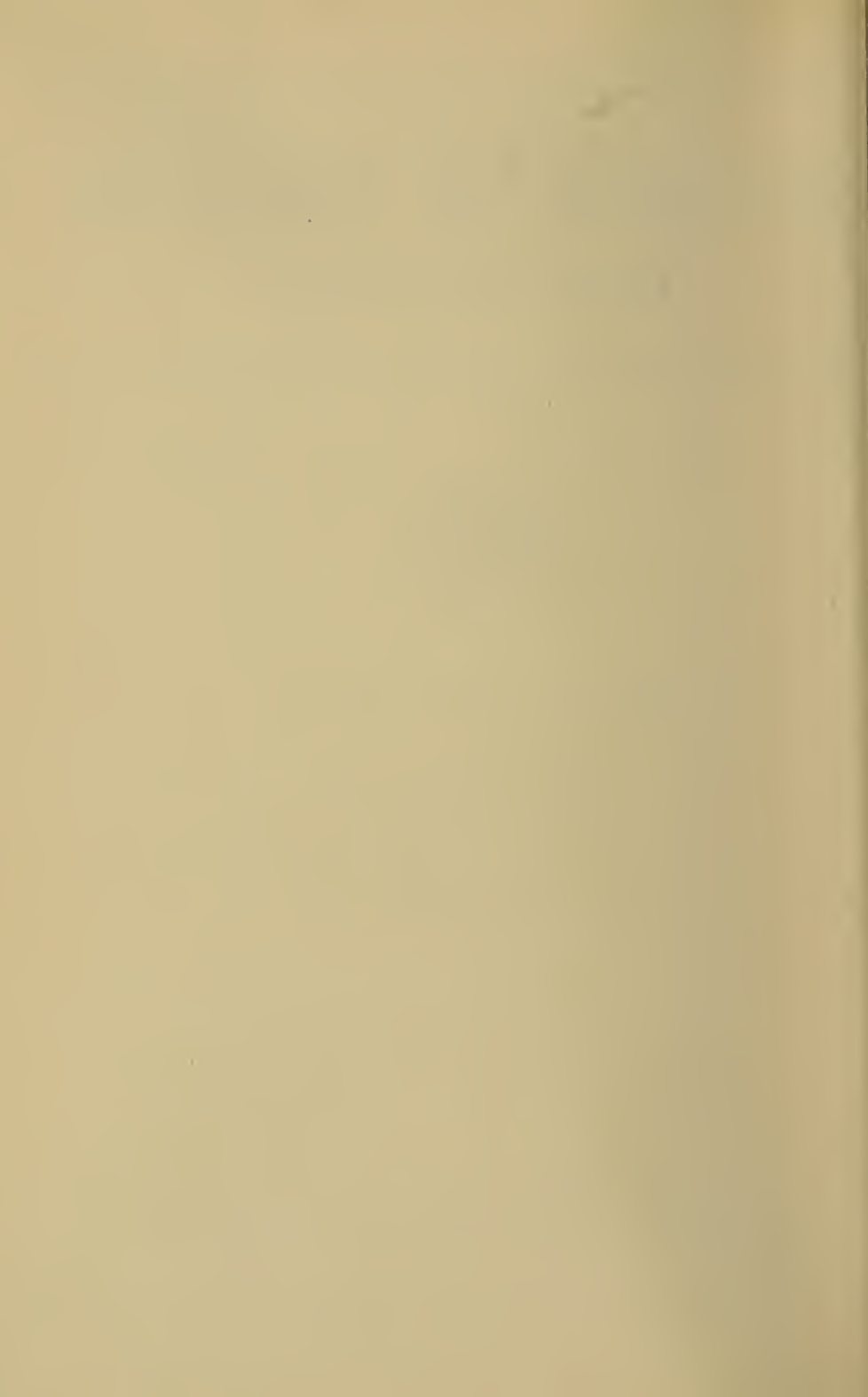


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UNIVERSITY CALENDAR, 1944-1945

COLLEGE PARK

SUMMER QUARTER

1944		
July 7-8	Friday-Saturday	Registration for summer quarter Registration for six-weeks' session
July 10	Monday	Instruction begins
August 18	Friday	Closing date, six weeks' session
Sept. 4	Monday	Labor Day, holiday
Sept. 25-28	Monday-Thursday	Examinations

FALL QUARTER

Oct. 6-7	Friday-Saturday	Registration for fall quarter
Oct. 9	Monday	Instruction begins
Oct. 16	Monday	Last day to file applications for admission to candidacy for Doctor's degree at spring commencement, 1945
Nov. 23	Thursday	Thanksgiving, Holiday
Dec. 22	Friday	Closing date, fall quarter

WINTER QUARTER

1945		
Jan. 5-6	Friday-Saturday	Registration for winter quarter
Jan. 8	Monday	Instruction begins
Feb. 22	Thursday	Washington's Birthday, holiday
March 26-29	Monday-Thursday	Examinations

SPRING QUARTER

April 6-7	Friday-Saturday	Registration for spring quarter
April 9	Monday	Instruction begins
April 9	Monday	Last day to file applications for admission to candidacy for the Master's degree at spring commencement, 1945.
May 30	Wednesday	Memorial Day, holiday
June 25-28	Monday-Thursday	Examinations

BOARD OF REGENTS

	Term Expires
ROWLAND K. ADAMS, Chairman	1948
1808 Fairbank Road, Baltimore	
MRS. JOHN L. WHITEHURST, Secretary	1947
4101 Greenway, Baltimore	
J. MILTON PATTERSON, Treasurer	1944
1015 Argonne Drive, Northwood, Baltimore	
T. ROY BROOKES	1952
Bel Air, Harford County	
W. CALVIN CHESNUT	1951
Roland Park, Baltimore	
WILLIAM P. COLE, JR.	1949
100 University Parkway, West, Baltimore	
PAUL S. KNOTTS	1945
Denton, Caroline County	
HARRY NUTTLE	1950
Denton, Caroline County	
JOHN E. SEMMES	1951
100 W. University Parkway, Baltimore	
PHILIP C. TURNER	1950
Parkton, Baltimore County	
STANFORD Z. ROTHSCHILD	1952
2215 Ken Oak Road, Baltimore	

ADMINISTRATIVE OFFICERS

H. C. BYRD, LL.D., President of the University
C. O. APPLEMAN, Ph.D., Dean of the Graduate School
ELSIE PARRETT, M.A., Secretary to the Dean
ADELE STAMP, M.A., Dean of Women
ALMA H. PREINKERT, M.A., Registrar
CARL W. E. HINTZ, A.M.L.S., Librarian
T. A. HUTTON, B.A., Purchasing Agent and Manager of
Student Supply Store

THE GRADUATE COUNCIL

H. C. BYRD, LL.D., President of the University
C. O. APPLEMAN, Ph.D., Dean of the Graduate School, Chairman
HAROLD BENJAMIN,* Ph.D., Professor of Education
A. E. JOYAL, Ph.D., Acting.
R. B. CORBETT, Ph.D., Director of Experiment Station
W. B. KEMP, Ph.D., Acting.
E. N. CORY, Ph.D., Professor of Entomology
H. F. COTTERMAN, Ph.D., Professor of Agricultural Education
N. L. DRAKE, Ph.D., Professor of Organic Chemistry
WILBERT J. HUFF, Ph.D., D.Sc., Professor of Chemical Engineering
L. H. JAMES, Ph.D., Professor of Bacteriology
JOHN G. JENKINS,* Ph.D., Professor of Psychology
W. R. CLARK, Ph.D., Acting.
DEVOE MEADE, Ph.D., Professor of Animal Husbandry
M. MARIE MOUNT, M.A., Professor of Home and Institution Management
H. J. PATTERSON, D.Sc., Dean Emeritus of Agriculture
J. FREEMAN PYLE, Ph.D., Professor of Economics and Marketing
A. E. ZUCKER, Ph.D., Professor of Modern Languages
WALTER H. HARTUNG, Ph.D., Professor of Pharmaceutical Chemistry
(Baltimore)
EDUARD UHLENHUTH, Ph.D., Professor of Gross Anatomy (Baltimore)
*On military leave.

Office of the Graduate School,
Room 214, Agricultural Building

GENERAL INFORMATION

HISTORY AND ORGANIZATION

In the earlier years of the institution the Master's degree was frequently conferred, but the work of the graduate students was in charge of the departments concerned, under the supervision of the general faculty. The Graduate School of the University of Maryland was established in 1918, and organized graduate instruction leading to both the Master's and the Doctor's degree was undertaken. The faculty of the Graduate School includes all members of the various faculties who give instruction in approved graduate courses. The general administrative functions of the graduate faculty are delegated to a Graduate Council, of which the Dean of the Graduate School is chairman.

LOCATION

The University of Maryland is located at College Park, in Prince George's County, Maryland, on the Baltimore and Ohio Railroad, eight miles from Washington and thirty-two miles from Baltimore. Washington, with its wealth of resources, is easily accessible by train, street car and bus.

The professional schools of Medicine, Nursing, Pharmacy, Dentistry and Law are located in Baltimore, at the corner of Lombard and Greene Streets.

LIBRARIES

In addition to the resources of the University libraries the great libraries of the National Capital are easily available for reference work. Because of the proximity of these libraries to College Park they are a valuable asset to research and graduate work at the University of Maryland.

The library building at College Park contains a number of seminar rooms and other desirable facilities for graduate work.

GENERAL REGULATIONS

ADMISSION

An applicant for admission to the Graduate School must hold a bachelor's or a master's degree from a college or university of recognized standing. The applicant shall furnish an official transcript of his collegiate record which for unconditional admission must show creditable completion of an adequate amount of undergraduate preparation for graduate work in his chosen field. Application for admission to the Graduate School should be made prior to dates of registration on blanks obtained from the office of the Dean.

After approval of the application a matriculation card, signed by the Dean, is issued to the student. This card permits one to register in the Graduate School. After payment of the fee, the matriculation card is stamped and returned to the student. It is his certificate of membership in the Graduate School and should be retained by the student to present at each succeeding registration.

Admission to the Graduate School does not necessarily imply admission to candidacy for an advanced degree.

REGISTRATION

All students pursuing graduate work in the University, even though they are not candidates for higher degrees, are required to register in the Graduate School at the beginning of each quarter. In no case will graduate credit be given unless the student matriculates and registers in the Graduate School. The program of work for each session is arranged by the student with the major department and entered upon two course cards, which are signed first by the professor in charge of the student's major subject and then by the Dean of the Graduate School. One card is retained by the Dean. The student takes the other card, and in case of a new student, also the matriculation card, to the Registrar's office, where the registration is completed. Students will not be admitted to graduate courses until the Registrar has certified to the instructor that registration has been completed. Course cards may be obtained at the Registrar's office or at the Dean's office. The heads of departments usually keep a supply of these cards in their respective offices.

GRADUATE COURSES

Graduate students must elect for credit in partial fulfillment of the requirements for higher degrees only courses designated **For Graduates** or **For Graduates and Advanced Undergraduates**. Students who are inadequately prepared for graduate work in their chosen fields or who lack prerequisites for minor courses may elect a limited number of courses numbered from 1 to 99 in the general catalogue, but graduate credit will not be allowed for these courses. Courses that are audited are registered for in the same way as other courses, and the fees are the same.

PROGRAM OF WORK

The professor who is selected to direct a student's thesis work is the student's adviser in the formulation of a graduate program, including suitable minor work, which is arranged in cooperation with the instructors. To encourage thoroughness in scholarship through intensive application, graduate students in the regular sessions are limited to a program of fifteen credit hours per quarter. If a student is preparing a thesis during the minimum residence for the master's degree, the registration in graduate courses should not exceed twelve hours for the quarter.

SUMMER SESSION FOR TEACHERS

In addition to the regular summer quarter, the University will conduct a six weeks summer session for teachers at College Park, with a comprehensive undergraduate and graduate program. The University publishes a separate bulletin giving full information on this summer session for teachers. This bulletin is available upon application to the Director of the Summer Session for Teachers, University of Maryland, College Park.

GRADUATE WORK IN PROFESSIONAL SCHOOLS AT BALTIMORE

Graduate courses and opportunities for research are offered in some of the professional schools at Baltimore. Students pursuing graduate work in the professional schools must register in the Graduate School, and meet the same requirements and proceed in the same way, as do graduate students in other departments of the University. The graduate courses in the professional Schools are listed on pages 59-64.

GRADUATE WORK BY SENIORS IN THIS UNIVERSITY

A senior of this University who has nearly completed the requirements for the undergraduate degree may, with the approval of his undergraduate dean and the Dean of the Graduate School, register in the undergraduate college for graduate courses, which may later be transferred for graduate credit toward an advanced degree at this University, but the total of undergraduate and graduate courses must not exceed fifteen credits for the quarter. Excess credits in the senior year cannot later be transferred unless such prearrangement is made. Graduate credits earned during the senior year may not be used to shorten the residence period required for advanced degrees.

ADMISSION TO CANDIDACY FOR ADVANCED DEGREES

Application for admission to candidacy for the Master's and for the Doctor's degree is made on application blanks which are obtained at the office of the Dean of the Graduate School. These are filled out in duplicate by the student and submitted to his major department for further action and transmission to the Dean of the Graduate School. An official transcript of the candidate's undergraduate record and any graduate courses completed at other institutions must be on file in the Dean's office before the application can be considered. All applications for admission to candidacy must be approved by the Graduate Council.

Admission to candidacy in no case assures the student of a degree, but merely signifies he has met all the formal requirements and is considered by his instructors sufficiently prepared and able to pursue such graduate study and research as are demanded by the requirements of the degree sought. The candidate must show superior scholarship in graduate work already completed.

Application for admission to candidacy is made at the time stated in the sections dealing with the requirements for the degree sought.

REQUIREMENTS FOR THE DEGREES OF MASTER OF ARTS AND MASTER OF SCIENCE

Advancement to Candidacy. Each prospective candidate for the Master's degree is required to make application for admission to candidacy not later than the date when instruction begins for the quarter in which the degree is sought. He must have completed at least twelve quarter hours, but not more than twenty-four quarter hours of graduate work at the University of Maryland. An average grade of "B" in all major and minor subjects is required.

Minimum Residence. A residence of at least three quarters or its equivalent, at this institution, is required.

Course Requirements. A minimum of thirty-six quarter hours, exclusive of research and thesis, with an average grade of "B" in courses approved for graduate credit, is required for the degrees of Master of Arts and Master of Science. At the option of the major department concerned the student may be required also to register for a maximum of nine quarter hours for research and thesis work. The total number of credit hours required for the degree would then be forty-five. If the student is inadequately prepared for the required graduate courses, either in the major or minor subjects, additional courses may be required to supplement the undergraduate work. Of the thirty-six hours required in graduate courses, not less than eighteen quarter hours and not more than twenty-four quarter hours must be earned in the major subject. The remaining credits must be outside the major subject and must comprise a group of coherent courses intended to supplement and support the major work. Not less than one-half of the total required course credits for the degree, or a minimum of eighteen, must be selected from courses numbered 200 or above. No credit for the degree of Master of Arts or Master of Science may be obtained for correspondence or extension courses. The entire course of study must constitute a unified program approved by the student's major adviser and by the Dean of the Graduate School.

Transfer of Credit. Credit not to exceed nine quarter hours, obtained at other recognized institutions, may be transferred and applied to the course requirements of the Master's degree, provided that the work was of graduate character, and provided that it is approved for inclusion in the student's graduate program at the University of Maryland. This transfer of credit is submitted to the Graduate Council for approval when the student applies for admission to candidacy for the degree. Acceptance of the transferred credit does not reduce the minimum residence requirement. The candidate is subject to final examination by this institution in all work offered for the degree.

Thesis. In addition to the thirty-six quarter hours in graduate courses a satisfactory thesis is required of all candidates for the degrees of Master of Arts and Master of Science. It must demonstrate the student's ability to do independent work and it must be acceptable in literary style and composition. It is assumed that the time devoted to thesis work will be not less than the equivalent of nine quarter hours earned in graduate courses. With the approval of the student's major professor and the Dean of the Graduate School, the thesis in certain cases may be prepared in *absentia* under direction and supervision of a member of the faculty of this institution.

The original copy of the thesis must be deposited in the office of the Graduate School not later than two weeks before the convocation at which the degree is sought. The thesis should not be bound by the student, as the University later binds all theses uniformly. An abstract of the contents of the thesis, 200 to 250 words in length, must accompany it. A manual giving full directions for the physical make-up of the thesis is in the hands of each professor who directs thesis work, and should be consulted by the student before the typing of the manuscript is begun. Individual copies of this manual may be obtained by the student at the Dean's office, at nominal cost.

Final Examination. The final oral examination is conducted by a committee appointed by the Dean of the Graduate School. The student's adviser acts as the chairman of the committee. The other members of the committee are per-

sons under whom the student has taken most of his major and minor courses. The chairman and the candidate are notified of the personnel of the examining committee at least one week prior to the period set for oral examinations. The chairman of the committee selects the exact time and place for the examination and notifies the other members of the committee and the candidate. The examination should be conducted within the dates specified at the end of the quarter, but upon recommendation of the student's adviser, an examining committee may be appointed by the Dean of the Graduate School at any time when all other requirements for the degree have been completed. A report of the committee is sent to the Dean as soon as possible after the examination. A special form for this purpose is supplied to the chairman of the committee. Such a report is the basis upon which recommendation is made to the faculty that the candidate be granted the degree sought. The period for the oral examination is usually about one hour, but the time should be long enough to insure an adequate examination.

The examining committee also approves the thesis, and it is the candidate's obligation to see that each member of the committee has ample opportunity to examine a copy of the thesis prior to the date of the examination.

A student will not be admitted to final examination until all other requirements for the degree have been met. In addition to the oral examination a comprehensive written examination may be required at the option of the major department.

REQUIREMENTS FOR THE DEGREE OF MASTER OF EDUCATION

Course Requirements. Forty-five quarter hours of course work are required, which may include courses in departments other than Education not to exceed one-half of the total forty-five hours, such courses to be selected in conformity with the student's special needs as agreed upon by the student and his adviser. Of the forty-five hours, not less than one-half must be on the 200 level.

At least six of the forty-five quarter hours must be seminar work which shall include one or more seminar papers in the student's major field of concentration in the Department of Education.

Included in the program must be courses in educational statistics and in procedure of educational research.

The requirements in regard to advancement to candidacy, transfer of credits, and final oral examination are the same as for the degrees of Master of Arts and Master of Science.

REQUIREMENTS FOR THE DEGREE OF MASTER OF BUSINESS ADMINISTRATION

The degree of Master of Business Administration represents a minimum of three quarters of graduate work in addition to the satisfaction of all undergraduate requirements for the bachelor's degree. This will normally include a minimum of thirty-six quarter course hours and the completion of a satisfactory thesis.

The undergraduate prerequisites for graduate work leading to the degree of Master of Business Administration may be satisfied by completion of work for the degree of Bachelor of Science in Business Administration at the University of Maryland, or by equivalent work leading to a corresponding degree at other institutions, provided this work is of sufficiently high quality. Holders of other bachelor's degrees must satisfy the prerequisite course requirements for the Bachelor of Science degree in Business Administration at this institution, which include Economics 140, 150, 160, and Business Administration 140, 150, 160, 180, 181, and 182. All other requirements are the same as for the degrees of Master of Arts and Master of Science.

The degree of Master of Business Administration represents specialized work in a particular field of business administration. To this end course and thesis work should contribute to one field of specialization, such as Accounting, Marketing, Finance, Labor, Public Utilities, Foreign Trade, or to some other field of the candidate's specialized interest.

REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY

Advancement to Candidacy. Candidates for the Doctor's degree must be admitted to candidacy at least three quarters before the final examination. Applications for admission to candidacy for the Doctor's degree are filled out by the student and submitted to his major department for further action and transmission to the Dean of the Graduate School.

The applicant must have obtained from the head of the Modern Language Department a statement that he possesses a reading knowledge of French and German. Preliminary examinations or such other substantial tests as the departments may elect are also required for admission to candidacy.

Residence. The equivalent of three years (nine quarters) of full time graduate study and research is the minimum required. Of the three years the equivalent of at least one year must be spent in residence at this university. On a part-time basis the time needed will be correspondingly increased. All work at other institutions offered in partial fulfillment of the requirements for the Ph.D. degree is submitted to the Graduate Council for approval, upon recommendation of the department concerned, when the student applies for admission to candidacy for the degree.

The Doctor's degree is not given merely as a certificate of residence and work, but is granted only upon sufficient evidence of high attainments in scholarship, and ability to carry on independent research in the special field in which the major work is done.

Major and Minor Subjects. The candidate must select a major and one or two closely related minor subjects. At least thirty-six quarter hours, exclusive of research, are required in minor work. The remainder of the required residence is devoted to intensive study and research in the major field. The amount of required course work in the major subject will vary with the department and the individual candidate. The candidate must register for a minimum of eighteen quarter hours of research.

Thesis. The ability to do independent research must be shown by a dissertation on some topic connected with the major subject. An original typewritten copy and two clear, plain carbon copies of the thesis, together with an abstract.

of the contents, 250 to 500 words in length, must be deposited in the office of the Dean at least three weeks before the con.ocation at which the degree is sought. It is the responsibility of the student also to provide copies of the thesis for the use of the members of the examining committee prior to the date of the final examination.

The original copy should not be bound by the student, as the university later binds uniformly all theses for the general university library. The carbon copies are bound by the student in cardboard covers which may be obtained at the students' supply store. The abstracts are published biennially by the university in a special bulletin.

A manual giving full directions for the physical make-up of the thesis is in the hands of each professor who directs thesis work, and should be consulted by the student before typing of the thesis is begun. Students may obtain copies of this manual at the Dean's office, at nominal cost.

Final Examination. The final oral examination is held before a committee appointed by the Dean. One member of this committee is a representative of the graduate faculty who is not directly concerned with the student's graduate work. One or more members of the committee may be persons from other institutions who are distinguished scholars in the student's major field.

The duration of the examination is approximately three hours, and covers the research work of the candidate as embodied in his thesis, and his attainments in the fields of his major and minor subjects. The other detailed procedures are the same as those stated for the Master's examination.

RULES GOVERNING LANGUAGE EXAMINATIONS FOR CANDIDATES FOR THE DEGREE OF DOCTOR OF PHILOSOPHY

1. A candidate for the Doctor's degree must show in a written examination that he possesses a reading knowledge of French and German. The passages to be translated will be taken from books and articles in his specialized field. Some 300 pages of text from which the applicant wishes to have his examination chosen should be submitted to the head of the Department of Modern Languages at least three days before the examination. The examination aims to test ability to use the foreign language for research purposes. It is presumed that the candidate will know sufficient grammar to distinguish inflectional forms and that he will be able to translate readily in two hours about 500 words of text, with the aid of a dictionary.

2. Application for admission to these tests must be filed in the office of the Department of Modern Languages at least three days in advance of the tests.

3. No penalty is attached to failure in the examination, and the unsuccessful candidate is free to try again at the next date set for these tests.

4. Examinations are held near the office of the Department of Modern Languages, on the first Wednesday of each quarter, at 2 p. m.

GRADUATE FEES

The fees paid by graduate students are as follows:

A matriculation fee of \$10.00. This is paid once only, upon admission to the Graduate School.

A diploma fee (Master's degree), \$10.00.

A graduate fee, including hood (Doctor's degree), \$20.00.

College Park:

A fixed charge, each quarter, of \$4.00 per quarter credit hour for students carrying eight hours or less; for students carrying more than eight hours, \$34.00 for the quarter.

Laboratory fees range from \$2.00 to \$8.00 per course per quarter.

Living Expenses and Self Help:

Board and lodging are available in many private homes in College Park and vicinity. The cost of board and room ranges from about \$50.00 to \$55.00 a month, depending on the desires of the individual. A list of accommodations is maintained in the offices of the Dean of Women and the Dean of Men.

Application for student employment, aside from fellowships and assistantships, may be made through the offices of the Dean of Men and the Dean of Women, or to department heads.

FELLOWSHIPS AND ASSISTANTSHIPS

Fellowships. A number of fellowships have been established by the University. The stipend for the University fellows is \$500 and the remission of all graduate fees except the diploma fee. Several industrial fellowships, with varying stipends, are also available in certain departments.

Fellows are required to render minor services prescribed by their major departments. The usual amount of service required does not exceed twelve clock hours per week. Fellows are permitted to carry a full graduate program, and they may satisfy the residence requirement for higher degrees in the normal time.

Applications for fellowships are made on blanks which may be obtained from the office of the Graduate School. The application, with the necessary credentials, is sent by the applicant directly to the Dean of the Graduate School. Applications which are approved by the Dean are forwarded to the departments, where final selection of the fellows is made. The awards of University fellowships are on a competitive basis.

Graduate Assistantships. A number of teaching and research graduate assistantships are available in several departments. The compensation for these assistantships is \$600 to \$1,000 a year and the remission of all graduate fees except the diploma fee. Graduate assistants are appointed for one year (four quarters) and are eligible to reappointment. The assistant in this class devotes one-half of his time to instruction or to research in connection with Experiment Station projects, and he is required to spend six quarters in residence for the Master's degree. If he continues in residence for the Doctor's degree, the minimum residence requirements from the Bachelor's degree may be satisfied in twelve quarters.

Applications for graduate assistantships are made directly to the departments concerned, and appointments are made through the regular channels for staff appointments. Further information regarding these assistantships may be obtained from the department or college concerned.

COMMENCEMENT

Attendance is required at the commencement at which the degree is conferred.

Application for diploma must be filed in the office of the Registrar eight weeks before the convocation at which the candidate expects to obtain a degree.

Academic costume is required of all candidates at commencement. Those who so desire may purchase or rent caps and gowns at the Student's Supply Store. Order must be filed eight weeks before the date of convocation but may be cancelled later if the student finds himself unable to complete his work for the degree.

A time schedule, supplementing this bulletin, is issued shortly before the beginning of each quarter, showing the hours and location of class meetings. This schedule is available at the office of the Graduate School, or the office of the Registrar.

The provisions of this bulletin are not to be regarded as an irrevocable contract between the student and the University. The University reserves the right to change any provision or requirement at any time within the student's term of residence.

DESCRIPTION OF COURSES

For the convenience of students in making out schedules of studies, the subjects in the following Description of Courses are arranged alphabetically:

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METHOD OF NUMBERING COURSES AND COUNTING CREDIT HOURS

Courses for Graduates and Advanced Undergraduates are numbered 100 to 199; Courses for Graduates only are numbered 200 and upwards.

A course with a single number extends through one quarter.

A course with a double number extends through two quarters.

A course with a triple number extends through three quarters.

The number of quarter hours' credit is shown by the arabic numeral in parentheses after the title of the course.

Examples:

Course 101. Title (3). Fall quarter. Prerequisite.

If a laboratory course:

Course 101. Title (3). One lecture and two laboratory periods a week, fall quarter. (This is a one-quarter course, offered once a year.)

Course 101. Title (3). Fall and winter quarters. Prerequisite.

(This is a quarter course, repeated each quarter indicated, and except for research, seminar, and certain special problem courses, may be taken only one quarter.)

Course 103, 104. Title (6). Three hours a week, winter and spring quarters. Prerequisite.

If a laboratory course:

Course 103, 104. Title (6). One lecture and two laboratory periods a week, fall and winter quarters.

(This is a course extending through two quarters, and completion of both quarters is required.)

Course 103, 104. Title (6). Three hours a week, fall and winter quarters; spring and summer quarters.

(This is a course extending through two quarters, and it is repeated for the two quarters indicated.)

Course 105, 106, 107. Title (9). Three hours a week, fall, winter, and spring quarters. Prerequisite.

If a laboratory course:

Course 105, 106, 107. Title (9). One lecture and two laboratory periods a week, fall, winter, and spring quarters.

(This is a course extending through three quarters, and completion of all three quarters is required.)

Course 105, 106, 107. (3, 3, 3). Three hours a week, fall, winter, and spring quarters.

(This is a course extending through three quarters, but with the permission of the instructor, credit may be obtained for any quarter separately.)

AGRICULTURAL ECONOMICS AND FARM MANAGEMENT

FOR GRADUATES AND ADVANCED UNDERGRADUATES

- A. E. 100. Farm Economics (3). Fall quarter. Prerequisites, Econ. 31, 32, 33, or Econ. 37. DeVault.
- A. E. 101. Marketing of Farm Products (3). Winter quarter. Prerequisites, Econ. 31, 32, 33, or Econ. 37. DeVault.
- A. E. 103. Cooperation in Agriculture (3). Fall quarter. Troelston.
- A. E. 104. Farm Finance (3). Spring quarter. Troelston.
- A. E. 105. Food Products Inspection (2). One lecture and one laboratory period a week, summer quarter. Staff.
- A. E. 106. Prices of Farm Products (3). Two lectures and one laboratory period a week, winter quarter. Troelston.
- A. E. 107. Analysis of the Farm Business (3). One lecture and two laboratory periods a week, winter quarter. Hamilton.
- A. E. 108. Farm Management (3). Spring quarter. Hamilton.
- A. E. 109. Research Problems (1-2). Fall, winter, spring, and summer quarters. DeVault.
- A. E. 111. Land Economics. (3). Fall quarter.
- A. E. 11 . Agricultural Policy (3). Spring quarter. Troelston.

FOR GRADUATES

- A. E. 200, 201. Special Problems in Farm Economics (2,2). Two hours a week, winter and spring quarters. DeVault.
- A. E. 202. Seminar (1-3). Fall, winter and spring quarters. DeVault.
- A. E. 203. Research. Credit according to work accomplished. DeVault.
- A. E. 210. Taxation in Relation to Agriculture (2). Spring quarter. Walker.
- A. E. 211. Agricultural Taxation in Theory and Practice (3). Two lectures and one laboratory period a week, fall quarter. Walker.
- A. E. 212, 213. Land Utilization and Agricultural Production (3, 2). Three hours a week, fall quarter; two hours a week, winter quarter. Baker.
- A. E. 214. Consumption of Farm Products and Standards of Living (3). Spring quarter. Baker.
- A. E. 215. Advanced Agricultural Cooperation (3). Winter quarter. Troelston.

AGRICULTURAL EDUCATION AND RURAL LIFE

FOR GRADUATES AND ADVANCED UNDERGRADUATES

- R. Ed. 107. Observation and Analysis of Teaching for Agricultural Students**
(3). One lecture and two laboratory periods a week, fall quarter. Ahalt.
- R. Ed. 109. Teaching Secondary Vocational Agriculture** (4). Fall quarter. Pre-
requisite, R. Ed. 107. Cotterman, Ahalt.
- R. Ed. 110. Rural Life and Education** (4). Winter quarter. Cotterman.
- R. Ed. 111. Teaching Part-Time and Adult Classes** (2). Fall quarter.
Cotterman, Ahalt.
- R. Ed. 112, 113. Departmental Management** (1, 1). One laboratory period a
week winter and spring quarters. Prerequisites, R. Ed. 107, 109. Ahalt.
- R. Ed. 114. Organization and Management of Farm Mechanics in Secondary
Schools** (2). Two laboratory periods a week, spring quarter. Prerequisites,
Ag. Eng. 54; R. Ed. 107. Carpenter.

FOR GRADUATES

- R. Ed. 201, 202, 203. Rural Life and Education** (3, 3, 3). Three hours a week,
fall, winter, and spring quarters. Prerequisite, R. Ed. 110, or equivalent.
Cotterman.
- R. Ed. 207, 208, 209. Problems in Vocational Agriculture, Related Science,
and Shop** (2, 2, 2). Two hours a week, fall, winter, and spring quarters.
Cotterman.
- R. Ed. 250. Seminar in Rural Education** (1-3). Fall, winter, and spring quar-
ters. Cotterman.
- R. Ed. 251. Research, Credit according to work done.** Cotterman.

AGRONOMY

A. Crops

FOR GRADUATES AND ADVANCED UNDERGRADUATES

- Agron. 103. Crop Breeding** (3). Fall quarter. Prerequisite, Zool. 104. Kemp.
- Agron. 151. Cropping Systems** (3). Spring quarter. Kemp.

FOR GRADUATES

- Agron. 201. Crop Breeding** (3-6). Fall quarter. Prerequisite, consent of in-
structor. Kemp.
- Agron. 203. Seminar** (1). Fall, winter, and spring quarters. Staff.
- Agron. 209. Research.** Staff.

B. Soils

FOR GRADUATES AND ADVANCED UNDERGRADUATES

- Soils 103. Soil Geography** (4). Three lectures and one laboratory period a
week, spring quarter. Prerequisites, Soils 1 and Geology. Thomas.

- Soils 112. Soil Conservation (3).** Two lectures and one discussion period a week, fall quarter. Prerequisite, Soils 1. Thomas.
- Soils 120. Soil Management (3).** Two lectures and one laboratory period a week, winter quarter. Prerequisites, Soils 1 and 2. Thomas.

FOR GRADUATES

- Soils 201. Special Problems and Research (10-12).** Arranged. Thomas.
- Soils 202, 203, 204. Soil Science (3, 3, 3).** Three lectures a week, fall, winter, and spring quarters. Prerequisites, Soils 1 and 2, or equivalent. Thomas.
- Soils 212, 213, 214. Soil Technique (2, 2, 2).** Two three-hour laboratory periods a week, fall, winter, and spring quarters. Thomas.

ANIMAL HUSBANDRY

FOR GRADUATES AND ADVANCED UNDERGRADUATES

- A. H. 112. Livestock Markets and Marketing (2).** Fall Quarter. Prerequisite, A. H. 2. Leinbach.
- A. H. 114. Animal Nutrition (3).** Fall quarter. Prerequisites, Chem. 13, 14, 15, 16; A. H. 52. Meade.
- A. H. 116. Light Horse Production (1).** Fall quarter. Finney, Brueckner, Outhouse.
- A. H. 117. Advanced Light Horse Production (1).** Spring quarter. Prerequisite, A. H. 116. Finney, Brueckner.

FOR GRADUATES

- A. H. 201. Special Problems in Animal Husbandry.** Credit in proportion to work accomplished. Fall, spring and summer quarters. Staff.
- A. H. 202. Seminar (1).** Fall and spring quarters. Staff.
- A. H. 203. Research.** Credit in proportion to work accomplished. Staff.
- A. H. 204. Advanced Breeding (2).** Spring quarter. Prerequisites, Zool. 104; A. H. 53. Meade.
- A. H. 206, 207. Advanced Livestock Management (3, 3).** Two lectures and one laboratory period a week, fall and winter quarters. Leinbach.

BACTERIOLOGY

A. Bacteriology

FOR GRADUATES AND ADVANCED UNDERGRADUATES

- Bact. 101. Milk Bacteriology (5).** Three lectures and two laboratory periods a week, fall and spring quarters. Prerequisites, Bact. 1 and 5. Hansen.

- Bact. 102. Dairy Products Bacteriology (4).** Two lectures and two laboratory periods a week, winter and summer quarters. Prerequisites. Bact. 1 and 5; Bact. 101 desirable. Hansen.
- Bact. 111. Food Bacteriology (5).** Three lectures and two laboratory periods a week, winter and summer quarters. Prerequisites, Bact. 1 and 5. James.
- Bact. 112. Sanitary Bacteriology (4).** Two lectures and two laboratory periods a week, fall and spring quarters. Prerequisites, Bact. 1 and 5. Hansen.
- Bact. 115. Serology (5).** Three lectures and two laboratory periods a week fall and spring quarters. Prerequisite, Bact. 2. Goldsmith
- Bact. 116. Epidemiology (3).** Winter quarter. Offered in alternate years. Prerequisite, Bact. 1, and credit or concurrent registration in Bact. 2 or 2A
- Bact. 118. Systematic Bacteriology (4).** Two lectures and two laboratory periods a week, winter quarter. Offered in alternate years. Prerequisite, 10 hours of bacteriology. Hansen.
- Bact. 125. Clinical Methods (2).** Two laboratory periods a week, fall and spring quarters. Prerequisite, Bact. 2 or 5, and consent of instructor.

FOR GRADUATES

- Bact. 211. Bacterial Metabolism (3).** Winter quarter. Prerequisites, Bact. 1, Chem. 13, 14, 15, 16. Hansen.
- Bact. 212. Advanced Food Bacteriology (4).** Two lectures and two laboratory periods a week, spring quarter. Prerequisite, Bact. 111, or equivalent. James.
- Bact. 216. Advanced Serology (3).** Winter quarter, Prerequisite, Bact. 115, or equivalent.
- Bact. 221. Research.** Credit to be determined by amount and character of work accomplished. Staff.
- Bact. 231. Seminar (2).** Summer, fall, winter and spring quarters. Staff.

B. Food Technology

- F. Tech. 100. Food Microscopy (3).** Two laboratory periods a week, fall and spring quarters. James.
- F. Tech. 108. Preservation of Poultry Products (3).** One lecture and two laboratory periods a week, spring quarter. Prerequisite, Bact. 1. James.
- F. Tech. 110. Regulatory Control (1).** One lecture and demonstration a week. summer quarter. James.

BOTANY

A. General Botany and Morphology

FOR GRADUATES AND ADVANCED UNDERGRADUATES

- Bot. 101. **Plant Anatomy** (3). One lecture and two laboratory periods a week, fall quarter. Prerequisite, Bot. 51. Bamford, Jones.
- Bot. 104. **Advanced Plant Taxonomy** (3). One lecture and two laboratory periods a week, summer quarter. Prerequisite, Bot. 50. Brown.
- Bot. 105. **Structure of Economic Plants** (2). Two laboratory periods a week, winter quarter. Prerequisite, Bot. 101. Bamford, Jones.
- Bot. 106. **History and Philosophy of Botany** (1). (Not offered in 1944-1945). Staff.

FOR GRADUATES

- Bot. 201. **Cytology**. (5). Three lectures and two laboratory periods a week, spring quarter. Prerequisites, Bot. 51, Zool. 104, or equivalent. Bamford.
- Bot. 202. **Plant Morphology** (2). Two laboratory periods a week. Prerequisites, Bot. 50, 101, or equivalent. (Not offered in 1944-1945.) Bamford, Jones.
- Bot. 203. **Seminar** (1). Fall, winter, and spring quarters. Prerequisite, permission of instructor. Bamford.
- Bot. 204. **Research**. Credit according to work done. Bamford.

B. Plant Pathology

FOR GRADUATES AND ADVANCED UNDERGRADUATES

- Plt. Path. 101. **Diseases of Special Crops** (3). Fall quarter. Prerequisite, Bot. 20, or equivalent. Woods, Cox, Jeffers, Petty.
- Plt. Path. 108. **Mycology** (5). Three lectures and two laboratory periods a week, spring quarter. Prerequisite, Bot. 2. Petty, Woods.

FOR GRADUATES

- Plt. Path. 201. **Virus Diseases** (2-3). Two lectures, or two lectures and one laboratory period a week, spring quarter. Prerequisite, Plt. Phys. 101. Woods.
- Plt. Path. 205. **Research**. Credit according to work done. Staff.
- Plt. Path. 206. **Plant Disease Control** (3). Winter quarter. Prerequisite, Bot. 20, or equivalent. Jeffers, Cox, Petty, Woods.
- Plt. Path. 209. **Seminar** (1). Fall, winter, and spring quarters. Staff.

C. Plant Physiology**FOR GRADUATES AND ADVANCED UNDERGRADUATES**

- Plt. Phys. 101. Plant Physiology (5).** Three lectures, and two laboratory periods a week, fall quarter. Prerequisite, Bot. 1. Brown.
- Plt. Phys. 102. Plant Ecology (3).** Two lectures and one laboratory period a week, summer quarter. Prerequisites, Bot. 1 and Bot. 50. Brown.

FOR GRADUATES

- Plt. Phys. 20'. Plant Biochemistry (4).** Winter quarter. Prerequisite, an elementary knowledge of plant physiology and organic chemistry. Appleman, Shirk.
- Plt. Phys. 202A. Plant Biophysics (2).** Prerequisites, Bot. 1; Plt Phys. 101; or equivalent. (Not offered in 1944-1945). Appleman.
- Plt. Phys. 202B. Biophysical Methods (2).** (Not offered in 1944-1945.) Shirk.
- Plt. Phys. 203. Plant Metabolism (3).** Spring quarter. Prerequisite, an elementary knowledge of plant physiology and organic chemistry. Appleman.
- Plt. Phys. 204. Growth and Development (2).** Fall quarter. Prerequisite, 18 hours of plant science. Appleman.
- Plt. Phys. 205. Seminar (1).** (Not offered in 1944-1945.) Appleman.
- Plt. Phys. 206. Research.** Credit according to work done. Staff.

BUSINESS AND PUBLIC ADMINISTRATION; ECONOMICS**A. Business Administration****FOR GRADUATES AND ADVANCED UNDERGRADUATES**

- B. A. 120. Intermediate Accounting (5).** Fall and summer quarters. Prerequisite, B. A. 22.
- B. A. 121. Cost Accounting (5).** Winter quarter. Prerequisite, B. A. 22.
- B. A. 122. Auditing Theory and Practice (5).** Spring quarter. Prerequisite, B. A. 120.
- B. A. 123. Income Tax Accounting (5).** Winter quarter. Prerequisite, B. A. 120.
- B. A. 124. Advanced Accounting. (5).** Fall and winter quarters. Prerequisite, B. A. 120.
- B. A. 125. C. P. A. Problems (5).** Spring quarter. Prerequisite, consent of instructor.
- B. A. 130. Elements of Statistics (4).** Fall, spring and summer quarters.

- B. A. 131. Business Statistics (4). Winter and summer quarters. Prerequisite, B. A. 130.
- B. A. 132, 133. Advanced Business Statistics (4, 4). Four hours a week, fall and spring quarters. Prerequisite, B. A. 131.
- B. A. 140. Financial Management (4). Winter and summer quarters. Prerequisite, Econ. 140.
- B. A. 141. Investment Management (4). Spring quarter. Prerequisite, B. A. 140.
- B. A. 142. Banking Policies and Practices (4). Spring quarter. Prerequisite, Econ. 140.
- B. A. 143. Credit Management (3). Spring quarter. Prerequisite, B. A. 140.
- B. A. 144. Life, Group and Social Insurance (3). Fall and summer quarters. Prerequisite, Econ. 33 or 37.
- B. A. 145. Property, Casualty, and Liability Insurance (3). Winter quarter. Prerequisite, Econ. 33 or 37.
- B. A. 146. Real Estate Financing and Appraisals (3). Spring quarter. Prerequisites, Econ. 33 or 37; B. A. 156.
- B. A. 147. Business Cycle Theory (4). Spring quarter, Prerequisite, Econ. 140. B. A. 131 recommended.
- B. A. 150. Marketing Management (4). Winter and summer quarters. Prerequisite, Econ. 150.
- B. A. 151. Advertising Programs and Campaigns (3). Fall quarter. Prerequisite, B. A. 150.
- B. A. 152. Advertising Copy Writing and Layout (3). Winter quarter. Prerequisite, B. A. 151.
- B. A. 153. Purchasing Management (3). Spring quarter. Prerequisite, B. A. 150.
- B. A. 154. Retail Store Management (4). Spring quarter. Prerequisite, Econ. 150.
- B. A. 156. Real Estate Principles and Practice (3). Fall quarter. Prerequisite, Econ. 33 or 37.
- B. A. 157. Foreign Trade Procedure (4). Prerequisite, B. A. 150. (Not offered in 1944-1945.)
- B. A. 160. Personnel Management (4). Winter and summer quarters. Prerequisite, Econ. 160.
- B. A. 162. Contemporary Trends in Labor Relations (3). Fall quarter. Prerequisite, B. A. 160.
- B. A. 163. Industrial Relations (3). Winter quarter. Prerequisite, Econ. 160.
- B. A. 165. Office Management (3). Fall and spring quarters. Prerequisite, B. A. 10.
- B. A. 170. Industrial Management (4). Spring quarter. Prerequisites, B. A. 11 and 12; 160.
- B. A. 171. Transportation II (4). Prerequisite, P. A. 170. (Not offered in 1944-1945.)
- B. A. 172. Transportation III (4). Prerequisite B. A. 171. (Not offered in 1944-1945.)

- B. A. 173. Transportation IV—Overseas Shipping (4).** Prerequisite, P. A. 170. (Not offered in 1944-1945.)
- B. A. 180, 181, 182. Business Law I, II, III (9).** Three hours a week, fall, winter, and spring quarters.
- B. A. 183. Law for Accountants (3).** Prerequisite, B. A. 182. (Not offered in 1944-1945.)
- B. A. 186. Real Estate Law and Conveyancing (3).** Prerequisite, B. A. 156. (Not offered in 1944-1945.)

FOR GRADUATES

- B. A. 220. Managerial Accounting (4).** (Not offered in 1944-1945.)
- B. A. 228. Research In Accounting.** Arranged.
- B. A. 229. Studies of Special Problems in the Fields of Control and Organization.** Arranged.
- B. A. 240. Seminar in Financial Management (1-3).** Prerequisites, Econ. 140; B. A. 22, 140.
- B. A. 250. Problems in Sales Management (3).** Spring quarter.
- B. A. 251. Problems in Advertising (3).**
- B. A. 252. Problems in Retail Store Management (3).** Spring and summer quarters.
- B. A. 257. Seminar in Marketing Management.** Arranged.
- B. A. 258. Research in Marketing.** Arranged.
- B. A. 262. Seminar in Contemporary Trends in Labor Relations.** Fall and summer quarters.
- B. A. 266. Research in Personnel Management.** Winter quarter. Arranged.
- B. A. 267. Research in Industrial Relations.** Arranged.
- B. A. 269. Studies in Special Problems in Employer-Employee Relationships.** Arranged.
- B. A. 299. Thesis.** Arranged.

B. Economics

FOR GRADUATES AND ADVANCED UNDERGRADUATES

- Econ. 130. Economics of Consumption (3).** Spring quarter. Prerequisite Econ. 33 or 37.
- Econ. 131. Comparative Economic Systems (4).** Fall quarter. Prerequisite, Econ. 33 or 37.
- Econ. 132. Advanced Economic Principles (4).** Spring quarter. Prerequisite, Econ. 33 or 37.
- Econ. 134. Contemporary Economic Thought (4).** Spring quarter. Prerequisite, Econ. 33 or 37.
- Econ. 135. Economic Institutions and War (4).** Summer quarter. Prerequisite, Econ. 33 or 37.
- Econ. 140. Money and Banking (4).** Fall, spring and summer quarters. Prerequisite, Econ. 33 or 37.
- Econ. 141. Theory of Money, Credit, and Prices (4).** Fall quarter. Prerequisites, Econ. 33 and 140.

- Econ. 150. Marketing Principles and Organization (4).** Fall and spring quarters. Prerequisite, Econ. 33 or 37.
- Econ. 151. Economics of Cooperatives (3).** Winter quarter. Prerequisite, Econ. 33 or 37.
- Econ. 160. Labor Economics (4).** Fall, winter and summer quarters. Prerequisite, Econ. 33 or 37.
- Econ. 170. Industrial Combination and Competition (4).** Spring and fall quarters. Prerequisite, Econ. 33 or 37.
- Econ. 171. Economics of American Industry (4).** Fall and summer quarters. Prerequisite, Econ. 33 or 37.

FOR GRADUATES

- Econ. 230. History of Economic Thought (4).** Fall quarter. Prerequisite, Econ. 132.
- Econ. 231. Economic Theory in the Nineteenth Century (4).** Spring quarter. Prerequisite, Econ. 230, or consent of instructor.
- Econ. 237, 238, 239. Seminar in Economic Investigation (3, 3, 3).** Three hours a week, fall, winter, and spring quarters.
- Econ. 240. Comparative Banking Systems (4).** Winter quarter.
- Econ. 270. Seminar in Economics of American Industries (3).** Arranged.
- Econ. 299. Thesis.** Arranged.

C. Natural and Human Resources

FOR GRADUATES AND ADVANCED UNDERGRADUATES

- N. H. R. 100. Physical Resources of the United States and Canada (3).** Fall quarter.
- N. H. R. 101. Land Utilization and Agricultural Geography, United States and Canada (3).** Winter quarter.
- N. H. R. 102. The Geography of Manufacturing in the United States and Canada (3).** Spring quarter.
- N. H. R. 110. Middle America (3).** Fall quarter.
- N. H. R. 111. South America (3).** Winter quarter.
- N. H. R. 112. Recent Economic Trends in Latin America (3).** Spring quarter.
- N. H. R. 120, 121. Economic Geography of Europe (6).** Three hours a week, spring and summer quarters.
- N. H. R. 122. Economic Geography of Africa (3).** Fall quarter.

FOR GRADUATES

- N. H. R. 203. Advanced Physiography (3).** Fall quarter.
- N. H. R. 204. Advanced Climatology (3).** Winter quarter.
- N. H. R. 221. Seminar in Regional Geography (3, 3, 3).** Three hours a week, fall, winter, and spring quarters.

D. Public Administration**FOR GRADUATES AND ADVANCED UNDERGRADUATES**

- P. A. 110. Principles of Public Administration (3).** Winter quarter. Prerequisites, Pol. Sci. 4; Econ. 33.
- P. A. 111. Public Personnel Administration (3).** Spring quarter. Prerequisites, P. A. 110; Econ. 160.
- P. A. 114. Public Budgeting (3).** Prerequisites, B. A. 22; Econ. 33. (Not offered in 1944-1945.)
- P. A. 124. Governmental Accounting (4).** Winter quarter. Prerequisite, B. A. 124.
- P. A. 126. Government and Social Security (3).** Spring quarter. Prerequisites, Pol. Sci. 4; Econ. 33.
- P. A. 130. International Economic Policies and Relations (4).** Fall quarter. Prerequisite, Econ. 33 or 37; Econ. 131 recommended.
- P. A. 137. Economic Planning and Post-war Problems (4).** Winter quarter. Prerequisite, Econ. 33 or 37; Econ. 131 recommended.
- P. A. 140. Public Finance and Taxation (4).** Fall quarter. Prerequisite, Econ. 33 or 37.
- P. A. 141. International Finance and Exchange (4).** Spring quarter. Prerequisite, Econ. 140; Econ. 141 recommended.
- P. A. 161. Recent Labor Legislation and Court Decisions (4).** Winter quarter. Prerequisite, Econ. 160; B. A. 160 recommended.
- P. A. 170. Transportation I, Regulation of Transportation Services (4).** Fall quarter. Prerequisite, Econ. 33 or 37.
- P. A. 180. Government and Business (4).** Fall and spring quarters. Prerequisite, Econ. 33 or 37.
- P. A. 184. Public Utilities (4).** Spring quarter. Prerequisite, Econ. 33 or 37.

FOR GRADUATES

- P. A. 201. Seminar in International Organization (3).** Arranged.
- P. A. 213. Problems of Public Administration (2).** Arranged.
- P. A. 214. Problems of Public Personnel Administration (3).**
- P. A. 235. Seminar in International Economic Relations (3).** Arranged.
- P. A. 240. Research in Governmental Fiscal Policies and Practices (3).** Arranged.
- P. A. 280. Seminar in Business and Government Relationships.** Arranged.
- P. A. 284. Seminar in Public Utilities (3).** Prerequisite, P. A. 184, and consent of instructor.
- P. A. 299. Thesis.** Arranged.

CHEMISTRY

A. Inorganic Chemistry

FOR GRADUATES AND ADVANCED UNDERGRADUATES

- Chem. 101. Advanced Inorganic Chemistry (3).** Spring quarter. Prerequisites, Chem. 23, and 37, 38. White.

FOR GRADUATES

- Chem. 201, 203. The Chemistry of Rarer Elements (6).** Three lectures a week, fall and winter quarters. White.
- Chem. 202, 204. Advanced Inorganic Laboratory (2, 2).** Two three-hour laboratory periods a week, fall and winter quarters. Prerequisite, consent of instructor. White.
- Chem. 206. An Introduction to Spectrographic Analysis (2).** Two three-hour laboratory periods a week, winter and spring quarters. Prerequisite, consent of instructor. White.

B. Analytical Chemistry

FOR GRADUATES AND ADVANCED UNDERGRADUATES

- Chem. 121, 123. Chemical Microscopy (3, 3).** One lecture and two three-hour laboratory periods a week, fall and winter quarters. Chem. 121 is a prerequisite for Chem. 123. Svirbely.

FOR GRADUATES

- Chem. 221, 223. Chemical Microscopy (3, 3).** One lecture and two three-hour laboratory periods a week, fall and winter quarters. Svirbely.
- Chem. 226, 228. Problems in Quantitative Analysis (3, 3).** Three three-hour laboratory periods a week. Arranged. Prerequisite, consent of instructor. Svirbely.

C. Organic Chemistry

FOR GRADUATES AND ADVANCED UNDERGRADUATES

- Chem. 141, 143. Advanced Organic Chemistry (6).** Three lectures a week, fall and spring quarters. Prerequisites, Chem. 37, 38. Drake.
- Chem. 142, 144. Advanced Organic Laboratory (3, 3).** Three three-hour laboratory periods a week, fall, winter, spring, and summer quarters. Prerequisites, Chem. 19, or 23, and Chem. 37, 38. Kilmer.
- Chem. 146, 148. The Identification of Organic Compounds (3, 3).** One lecture and one or two three-hour laboratory periods a week, fall, winter, spring, and summer quarters. Prerequisites, Chem. 141, 143, or concurrent registration therein. Kilmer.

FOR GRADUATES

(One course from the group 241-251 is offered each quarter, excepting the summer quarter.)

- Chem. 241. Stereochemistry (2).** Kilmer.

- Chem. 243.** The Polyene Pigments and Certain Vitamins (2). Kilmer.
- Chem. 245.** The Sterols and Sex Hormones (2). Kilmer.
- Chem. 247.** The Chemistry of Nitrogen Compounds (2). Kilmer.
- Chem. 249.** Physical Aspects of Organic Chemistry (2). Kilmer.
- Chem. 251.** The Heterocyclics (2). Kilmer.
- Chem. 254.** Advanced Organic Preparations (3 to 5). Three to five three-hour laboratory periods a week, fall, winter, spring and summer quarters. Kilmer.
- Chem. 256.** Organic Microanalysis (5). Five three-hour laboratory periods a week, fall, winter and spring quarters. Prerequisite, consent of instructor. Drake.
- Chem. 258.** The Identification of Organic Compounds, An Advanced Course (3 to 5). Three to five three-hour laboratory periods a week, fall, winter, spring and summer quarters. Kilmer.
- Chem. 260.** Advanced Organic Laboratory (2 to 3). Two or three three-hour laboratory periods a week, fall, winter, spring and summer quarters. Kilmer.

D. Biochemistry

FOR GRADUATES AND ADVANCED UNDERGRADUATES

- Chem. 161.** Biochemistry (3). Winter quarter. Prerequisites, Chem. 37, 38, or consent of instructor. Creech.
- Chem. 162, 164.** Biochemistry Laboratory (2, 2). Two three-hour laboratory periods a week, winter and spring quarters. Creech.
- Chem. 166, 168.** Food Analysis (3, 3). One lecture and two three-hour laboratory periods a week, fall and winter quarters; spring and summer quarters. Prerequisites, Chem. 31, 32, 33, 34; Chem. 19. Wiley.

FOR GRADUATES

- Chem. 261, 263.** Advanced Biochemistry (6). Three lectures a week, fall and winter quarters. Prerequisites, Chem. 141, 143, or equivalent. Creech.
- Chem. 262, 264.** Advanced Biochemistry Laboratory (4). Two three-hour laboratory periods a week, fall and winter quarters. Prerequisites, Chem. 36, 38. Creech.
- Chem. 266.** Biological Analysis (2). Two three-hour laboratory periods a week, fall and winter quarters. Prerequisite, Chem. 19. Creech.
- Chem. 268.** Special Problems in Biochemistry (3-6). Two to six three-hour laboratory periods a week, fall and winter quarters. Prerequisite, consent of instructor. Creech.

E. Physical Chemistry

FOR GRADUATES AND ADVANCED UNDERGRADUATES

- Chem. 181, 183.** Elements of Physical Chemistry (6). Three lectures a week, fall and winter quarters. Prerequisites, Chem. 13; Phys. 1,2; Math. 10, 11. Oesper.

- Chem. 182, 184. Elements of Physical Chemistry Laboratory (2).** One three-hour laboratory a week, fall and winter quarters. May be taken only when accompanied by Chem. 181, 183. Oesper.
- Chem. 187, 189. Physical Chemistry (10).** Five lectures a week, fall and winter quarters; spring and summer quarters. Prerequisites, Chem. 21, 23; Phys. 3, 4, 5; Math 20, 21, 22. Haring.
- Chem. 188, 190. Physical Chemistry Laboratory (6).** Three three-hour laboratory periods a week, fall and winter quarters; spring and summer quarters. Oesper.

FOR GRADUATES

The common prerequisites for the following courses are Chem 187, 189 and Chem. 188, 190, or equivalent.

- Chem, 281, 283. Theory of Solutions (3, 3).** Fall and winter quarters. Svirebely.
- Chem. 285, 287. Colloid Chemistry (6).** Three lectures a week, fall and winter quarters. (Not offered in 1944-1945.) Haring.
- Chem. 286, 288. Colloid Chemistry Laboratory (2, 2).** Two three-hour laboratory periods a week, fall and winter quarters. This course must accompany or be preceded by Chem. 285, 287. (Not offered in 1944-1945.) Haring.
- Chem. 289. Quantum and Statistical Mechanics (3).** Fall quarter. (Not offered in 1944-1945.) Oesper.
- Chem. 291. Valence Theory (3).** Winter quarter. (Not offered in 1944-1945.) Oesper.
- Chem. 295. Phase Rule (3).** Winter quarter. Haring.
- Chem. 297. Catalysis (3).** Spring quarter. Haring.
- Chem. 299, 301. Reaction Kinetics (4).** Two lectures a week, fall and winter quarters. Oesper.
- Chem. 303, 305. Electrochemistry (6).** Three lectures a week, fall and winter quarters. Haring.
- Chem. 304, 306. Electrochemistry Laboratory (3, 3).** Three three-hour laboratory periods a week, fall and winter quarters. Haring.
- Chem. 307, 309. Chemical Thermodynamics (6).** Three lectures a week, winter and spring quarters. (Not offered in 1944-1945.) Haring.
- Chem. 351. Seminar (1).** Fall, winter, and spring quarters. Staff.
- Chem. 360. Research.** Fall, winter, spring, and summer quarters. Staff.

CLASSICAL LANGUAGES

FOR GRADUATES AND ADVANCED UNDERGRADUATES

- Latin 121. Roman Prose Writers (5).** Prerequisite, 10 quarter hours beyond Latin 3.
- Latin 122. Roman Satire (5).** Prerequisite, 10 quarter hours beyond Latin 3.
- Latin 131. The Historian Tacitus (5).** Prerequisite, 10 quarter hours beyond Latin 3. Banta.

- Latin 132. Martial, Selected Epigrams (5). Prerequisite, 10 quarter hours beyond Latin 3. Banta.
- Latin 141. Lucretius, De Rerum Natura (5). Prerequisite, 10 quarter hours beyond Latin 3.
- Latin 152. Catullus (5). Prerequisite, 10 quarter hours beyond Latin 3.
- Latin 171. History of the Latin Language (3). Prerequisite, 10 quarter hours beyond Latin 3, or special permission of the instructor. Banta.
- Latin 172. Medieval Latin (3). Prerequisite, 10 quarter hours beyond Latin 3. Banta.

COMPARATIVE LITERATURE

FOR GRADUATES AND ADVANCED UNDERGRADUATES

- Comp. Lit. 101. Introductory Survey of Comparative Literature (3). Zucker.
- Comp. Lit. 102. Introductory Survey of Comparative Literature (3). Zucker.
- Comp. Lit. 103. Chaucer (3). Fall quarter. Harman.
- Comp. Lit. 104. The Old Testament as Literature (3). Zucker.
- Comp. Lit. 105. Romanticism in France (3). Wilcox.
- Comp. Lit. 106. Romanticism in Germany (3). Prahl.
- Comp. Lit. 107. The Faust Legend in English and German Literature (3). Prahl.
- Comp. Lit. 108. Milton (3). Summer quarter. Same as Eng. 108. Ball.
- Comp. Lit. 109. Cervantes (3).
- Comp. Lit. 110. Introduction to Folklore (3).
- Comp. Lit. 111. A Study of Literary Criticism (5).
- Comp. Lit. 112. Ibsen (4). Zucker.
- Comp. Lit. 113, 114. Prose and Poetry of the Romantic Age (3, 3). Two hours a week, fall and winter quarters. Same as Eng. 113, 114. Weeks.
- Comp. Lit. 124. Contemporary Drama (5). Fall quarter. Same as Eng. 124. Andrews.
- Comp. Lit. 125. Emerson, Thoreau, and Whitman (3). Same as Eng. 125.

FOR GRADUATES

- Comp. Lit. 200. The History of the Theatre (3).
- Comp. Lit. 201. Medieval Romance in England (3). Same as Eng. 204.
- Comp. Lit. 203. Schiller (5). Same as German 203. Prahl.
- Comp. Lit. 204. Goethe's *Faust* (3). Same as German 204. Zucker.
- Comp. Lit. 205. Georges Duhamel, Poet, Dramatist, Novelist (5). Same as French 204. Falls.
- Comp. Lit. 206. Seminar in Sixteenth Century Literature (3). Fall quarter. Same as Eng. 205. Zeeveld.
- Comp. Lit. 207. Seminar in Shakespeare (3). Winter quarter. Same as Eng. 207. Zeeveld.

DAIRY HUSBANDRY

FOR GRADUATES AND ADVANCED UNDERGRADUATES

- D. H. 101. **Dairy Production (4)**. Three lectures and one laboratory period a week, fall quarter. Prerequisites, D. H. 1, and A. H. 52.
- D. H. 105. **Dairy Breeds and Breeding (3)**. Two lectures and one laboratory period a week, winter quarter. Prerequisites, D. H. 1, Zool. 104, A. H. 53. Berry.
- D. H. 109. **Cheese Making (4)**. One lecture and three laboratory periods a week, fall quarter. Prerequisites, D. H. 1, Bact. 1, and Bact. 5. Hughes.
- D. H. 110. **Butter Making (2)**. One lecture and one laboratory period a week, fall quarter. Prerequisites, D. H. 1, Bact. 1, and Bact. 5.
- D. H. 111. **Concentrated Milks (3)**. One lecture and two laboratory periods a week, spring quarter. Prerequisites, D. H. 1, Bact. 1, and Bact. 5.
- D. H. 112. **Ice Cream Making (4)**. One lecture and three laboratory periods a week, winter quarter. Prerequisites, D. H. 1, Bact. 1, and Bact. 5.
- D. H. 113. **Market Milk (5)**. Three lectures and two laboratory periods a week, fall quarter. Prerequisites, D. H. 1, Bact. 1, and Bact. 5.
- D. H. 114. **Analysis of Dairy Products (5)**. Two lectures and three laboratory periods a week, winter quarter. Prerequisites, D. H. 1, Bact. 1. Bact. 5, Chem 4, 12, 13, 15 and 16.
- D. H. 119, 120, 121. **Dairy Literature (1, 1, 1)**. One hour a week, fall, winter and spring quarters. Prerequisite, D. H. 1. Berry, Moore-
- D. H. 123. **Methods of Dairy Research (2-5)**. Summer, fall, winter, and spring quarters. Berry, Moore.

FOR GRADUATES

- D. H. 201. **Advanced Dairy Production (3)**. Fall quarter. Moore.
- D. H. 202. **Dairy Technology (3)**. Fall quarter.
- D. H. 203. **Milk Products (2)**. Winter quarter.
- D. H. 204. **Special Problems in Dairying (2-5)**. Summer, fall, winter, and spring quarters. Staff.
- D. H. 205. **Seminar (1)**. Fall, winter and spring quarters. Staff.
- D. H. 208. **Research**. Credit to be determined by amount and quality of work done. Staff.

EDUCATION

A student in Education has the option of qualifying for the degree of Master of Arts or for the degree of Master of Education. (For requirements see pages 9-11.)

Special Departmental Requirements and Information

MASTER OF ARTS AND MASTER OF EDUCATION

Students who do not complete the requirements for Master's degree within six years of the date of matriculation may be required to take supplementary

course work at the rate of three quarter hours for each year the completion of the course requirements is deferred beyond six years, or to take special examinations based upon up-to-date materials in courses more than six years old.

A qualifying written examination is required of all candidates for a degree, to be taken after the student has successfully completed fifteen quarter hours, and before he has completed twenty-eight hours (Master of Arts), or thirty-eight hours (Master of Education). This examination covers the general information a student should have in the field of education and in his minor field. To assist in a choice of reading in preparation for the examination, a list has been prepared and is available in the office of the College of Education. The examination is usually given on the first Saturday in December, February and June, simultaneously at College Park and Baltimore.

Candidates for the degree of Master of Education who are high school teachers not preparing for administrative positions are expected to take at least eighteen quarter hours in their subject fields.

In addition to the general requirements for admission, applicants for unconditional admission with a major in Education must have had twenty-four quarter hours of undergraduate work in Education of acceptable quality, equivalent in character to the twenty-four hours required in the junior and senior years of the University of Maryland.

DOCTOR OF PHILOSOPHY

The Department of Education offers work towards the degree of Doctor of Philosophy with major or minor in the following fields:

- a. General Education: includes history of education, comparative education, educational sociology, secondary education, elementary education, and adult education.
- b. Educational Administration: includes organization and administration of elementary, secondary, and higher education; school finance, business administration of schools; and supervision of elementary and secondary schools.
- c. Curriculum and Instruction: includes principles of curriculum making, special methods and curricula in various fields, guidance, and research studies in the teaching of special subjects.

In addition to the general university requirements for the degree the following additional requirements must be met by students proposing to major in one of the above fields.

1. Qualifying examination, oral or written, or both, at the discretion of the department, covering student's undergraduate and first year of graduate preparation in education and related fields, to be taken as soon as possible after completion of the first year of graduate work and in any event required before receiving the department's official permission to take work beyond the Master's degree with the purpose of applying for candidacy for the doctorate.
2. The preliminary examination for admission to candidacy for the Ph.D. degree will include a written examination covering the student's preparation in major and minor fields, and an oral examination covering his plan of research for the doctoral dissertation.

A. History, Principles, Curriculum, and Administration

FOR GRADUATES AND ADVANCED UNDERGRADUATES

- Ed. 100. History of Education in the United States (3). Winter and summer quarters.
- Ed. 102. History of Modern Education (3). Fall and spring quarters.
- Ed. 103. Theory of the Senior High School (3). Fall quarter. Joyal.
- Ed. 104. Principles of Education (3). Winter and summer quarters. Schindler.
- Ed. 105. Educational Measurements (3). Winter and summer quarters. Prerequisite, consent of instructor. Brechbill.
- Ed. 107. Comparative Education (3). (Not offered in 1944-1945.)
- Ed. 108. Comparative Education (3). (Not offered in 1944-1945.)
- Ed. 110. Theory of the Junior High School (3). Winter, spring, and summer quarters. Joyal.
- Ed. 112. Educational Sociology—Introductory (3). Fall and spring quarters. Schindler.
- Ed. 114. Guidance in the Schools (3). Winter and summer quarters. Schindler.
- Ed. 120. Curriculum, Instruction, and Observation—English (5). Fall and winter quarters. Bryan.
- Ed. 122. Curriculum, Instruction, and Observation—Social Studies (5). Fall and spring quarters. Schindler.
- Ed. 124. Curriculum, Instruction, and Observation—Foreign Languages (5). Spring quarter.
- Ed. 126. Curriculum, Instruction, and Observation—Science (5). Winter and spring quarters. Brechbill.
- Ed. 127. High School Course of Study—Literature (3). Spring and summer quarters. Bryan.
- Ed. 128. Curriculum, Instruction, and Observation—Mathematics (5). Winter and spring quarters. Brechbill.
- Ed. 129. High School Course of Study—English (3). Winter quarter. Bryan.
- Ed. 133. Remedial Reading Instruction (2). Fall quarter. Zerbola.
- Ed. 138. Visual Education (3). Fall, spring, and summer quarters. Brechbill.
- Ed. 141. Administration and Supervision in the Elementary School (3). Summer quarter.
- Ed. 142. Curriculum, Instruction, and Observation—Physical Education (5). Spring quarter. Tenney.
- Ed. 143. The Elementary School Curriculum (3). Winter and summer quarters. Schindler.
- Ed. 180. Introduction to Special Education (2). Fall and summer quarters.

FOR GRADUATES

- Ed. 200. The Organization and Administration of Public Education (3). Fall quarter. Joyal.

- Ed. 202. The Organization, Administration, and Supervision, of Secondary Schools (3). Winter quarter. Joyal.
- Ed. 203. High School Supervision (3). Spring quarter. Joyal.
- Ed. 204. Source Materials in Education (2). Fall and winter quarters. Joyal.
- Ed. 209. Public Education in Maryland (3). Summer quarter. Joyal.
- Ed. 211. The Adolescent: Characteristics and Problems (3). Summer quarter.
- Ed. 216. School Finance and Business Administration (3). Summer quarter. Joyal.
- Ed. 217. Research Methods (2). Spring quarter. Joyal.

NOTE: Students qualifying for the degree of Master of Education will elect the required six quarter hours of seminar work from the following list of seminars (Ed. 220-Ed. 234, inclusive). These courses are open for election by any other graduate student.

- Ed. 220. Seminar in Secondary Education (3). Fall and summer quarters. Schindler.
- Ed. 222. Seminar in Adult Education (3). (Not offered in 1944-1945.)
- Ed. 224. Seminar in History of Education (3). Spring quarter.
- Ed. 226. Seminar in Administration (3). Summer quarter. Joyal.
- Ed. 228. Seminar in Special Education (3). Summer quarter.
- Ed. 230. Seminar in Science Education (3). Fall quarter. Brechbill.
- Ed. 232. Seminar in Educational Sociology (3). Winter quarter. Schindler.
- Ed. 234. Seminar in Comparative Education (3). (Not offered in 1944-1945.)
- Ed. B236. Seminar in Vocational Education (3), commonly given in the Baltimore division, may be used to satisfy this requirement. Summer quarter.
- Ed. 237. Curriculum Development in the Secondary School (3). Summer quarter. Schindler.
- Ed. 299. Research. Staff.

B. Commercial Education

FOR GRADUATES AND ADVANCED UNDERGRADUATES

- Ed. 150. Curriculum, Instruction, and Observation—Commercial Subjects (5) Spring quarter. Patrick.

C. Home Economics Education

FOR GRADUATES AND ADVANCED UNDERGRADUATES

- H. E. Ed. 101. Curriculum, Instruction, and Observation—Home Economics (5). Fall, winter, and spring quarters. McNaughton.
- H. E. Ed. 104. Nursery School Techniques (3-5). Winter and summer quarters. McNaughton.
- H. E. Ed. 105. Special Problems. Child Study (5). Spring and summer quarters. McNaughton.

FOR GRADUATES

- H. E. 201. Advanced Methods of Teaching Home Economics (3-5).** Winter and summer quarters. McNaughton.
- H. E. Ed. 250. Seminar in Home Economics Education (3-5).** Fall and spring quarters. McNaughton.

D. Industrial Education

FOR GRADUATES AND ADVANCED UNDERGRADUATES

- Ind. Ed. 160. Essentials of Design (3).** Fall and spring quarters.
- Ind. Ed. 162. Curriculum, Instruction, and Observation—Industrial Education (5).** Winter quarter.
- Ind. Ed. 164. Shop Organization and Management (3).** Summer quarter. Brown.

For courses offered in Baltimore address Professor Glen D. Brown, Department of Industrial Education, University of Maryland, Lombard and Greene Streets, Baltimore-1, Maryland.

ENGINEERING

A. Chemical Engineering

FOR GRADUATES AND ADVANCED UNDERGRADUATES

- Ch. E. 103 a,b,c. Elements of Chemical Engineering (9).** Three hours a week. Parts a,b,c, summer, fall and winter quarters; part a, spring quarter 1945. Prerequisites: Chem. 1A, 3A; Physics 3A, 4A, 5A.
- Ch. E. 104 a,b,c. Chemical Engineering Seminar (3).** One hour a week. Parts a,b,c, summer, fall and winter quarters; part a, spring quarter 1945.
- Ch. E. 105 a,b,c. Advanced Unit Operations (15).** Two lectures and one all-day laboratory period a week. Parts a,b,c, summer, fall and winter quarters; part a, spring quarter 1945. Prerequisites: Ch. E. 103 a, b, c; Chemistry 187, 188, 189, 190.
(This is a course extending through three quarters, and completion of all quarters is required.)
- Ch. E. 106 a,b,c. Minor Problems (18).** Six hours a week. Prerequisites: Ch. E. 105 a,b,c, or simultaneous registration therein. (Not offered in 1944-1945.)
- Ch. E. 107 a,b,c. Fuels and Their Utilization (6).** Two hours a week. Parts a,b,c, summer, fall and winter quarters; part a, spring quarter 1945. Prerequisites: Ch. E. 103 a,b,c, or permission of Department of Chemical Engineering.
- Ch. E. 108 a,b,c. Chemical Technology (6).** Two hours a week. Parts a,b,c, summer, fall and winter quarters; part a, spring quarter 1945. Prerequisites: Ch. E. 103 a,b,c, or simultaneous registration therein, or permission of the Department of Chemical Engineering.
- Ch. E. 109 a,b,c. Chemical Engineering Thermodynamics (6).** Two hours a week. Parts a,b,c, summer, fall and winter quarters; part a, spring quarter 1945. Prerequisites: Physical Chemistry 187, 188, 189, 190; Ch. E. 103 a,b,c, or permission of instructor.

- Ch. E. 110 a,b,c. Chemical Engineering Calculations (9).** Three hours a week. Parts a,b,c, summer, fall and winter quarters; part a, spring quarter 1945. Prerequisites: Math. 20, 21, 22; Ch. E. 103 a,b,c.
- Ch. E. 111 a,b,c. Explosives and Toxic Gases (6).** Two hours a week. Prerequisites: Organic Chemistry 35, 37, Physical Chemistry 187, 188, 189, 190. (Not offered in 1944-1945.)

FOR GRADUATES

- Ch. E. 201 a,b,c. Graduate Unit Operations. (15 or more).** One hour conference, three or more laboratory periods a week. Prerequisite, permission of Department of Chemical Engineering.
(This is a course extending through three quarters, and completion of all quarters is required.)
- Ch. E. 202. Gas Analysis (3).** One lecture and two laboratory periods a week. Prerequisite, permission of Department of Chemical Engineering.
- Ch. E. 203. Graduate Seminar (1).** One hour a week. Required of all graduate students in Chemical Engineering.
- Ch. E. 205. Research.** Credit to be arranged.
- Ch. E. 207A, 208A, 209A. Plant Design Studies (9).** Three conference hours a week. Prerequisite, permission of Department of Chemical Engineering.
- Ch. E. 207B, 208B, 209B. Plant Design Studies Laboratory (6).** Three laboratory periods a week. Prerequisite, permission of Department of Chemical Engineering.
(This is a course extending through three quarters, and completion of all quarters is required.)
- Ch. E. 210 a,b,c. Gaseous Fuels (6).** Two hours a week. Prerequisite, permission of Department of Chemical Engineering.

B. Civil Engineering

FOR GRADUATES AND ADVANCED UNDERGRADUATES

- C. E. 100. Theory of Structures (6).** Five lectures and one laboratory period a week, spring quarter. Prerequisite, Mech 51.
- C. E. 101. Elements of Highways (5).** Three lectures and two laboratory periods a week, fall quarter. Prerequisite, Mech. 51.
- C. E. 102, 103, 104. Concrete Design (11).** Three hours a week, fall and spring quarters; four lectures and one laboratory period a week, winter quarter. Prerequisite, C. E. 100.
- C. E. 105, 106, 107. Structural Design (11).** Three lectures a week, fall and spring quarters; four lectures and one laboratory period a week, winter quarter. Prerequisite, C. E. 100.
- C. E. 108, 109, 110. Municipal Sanitation (9).** Two lectures and one laboratory period a week, fall, winter and spring quarters. Prerequisite, C. E. 50.
- C. E. 111. Soils and Foundations (4).** Three lectures and one laboratory period a week, spring quarter. Prerequisite, C. E. 100.

- C. E. 112, 113. **Elements of Structures (4)**. Two hours a week, fall and winter quarters. Prerequisites, Phys. 3A, 4A, 5A and Mech. 1 or 2. For non-civil engineering students.

FOR GRADUATES

- C. E. 200. **Advanced Properties of Materials (3)**. Fall, winter or spring quarter. Prerequisite, Mech. 53 or equivalent.
- C. E. 201. **Advanced Strength of Materials (3)**. Fall, winter or spring quarter. Prerequisite, Mech. 50, 51, or equivalent.
- C. E. 202. **Applied Elasticity (3)**. Fall, winter, or spring quarter. Prerequisite, Math. 114, or equivalent.
- C. E. 203. **Soil Mechanics (3)**. Fall, winter, or spring quarter. Prerequisite, C. E. 111, or equivalent.
- C. E. 204. **Advanced Foundations (3)**. Fall, winter, or spring quarter. Prerequisite, C. E. 102, 103, 104, or equivalent.
- C. E. 205. **Highway Engineering (3)**. Fall, winter, or spring quarter. Prerequisite, C. E. 101 or equivalent.
- C. E. 206. **Theory of Concrete Mixtures (6)**. Fall, winter, or spring quarter. Prerequisite, Mech. 53 or equivalent.
- C. E. 207. **Advanced Structures (4)**. Three lectures and one laboratory period a week. Prerequisites, C. E. 102, 103, 104 and C. E. 105, 106, 107.
- C. E. 208. **Research**, Credit in accordances, with work done. Fall, winter, or spring quarter.

C. Electrical Engineering

FOR GRADUATES AND ADVANCED UNDERGRADUATES

- E. E. 100. **Alternating-Current Circuits (7)**. Five lectures and two laboratory periods a week, winter quarter. Prerequisite, E. E. 55.
- E. E. 101. **Engineering Electronics (6)**. Five lectures and one laboratory period a week, spring quarter. Prerequisite, E. E. 55; E. E. 100.
- E. E. 102, 103, 104. **Alternating-Current Machinery (14)**. Three lectures and two laboratory periods a week, fall and winter quarters; three lectures and one laboratory period a week, spring quarter. Prerequisite, E. E. 100.
- E. E. 105, 106. **Radio Communication (8)**. Three lectures and one laboratory period a week, fall and winter quarters. Prerequisites, E. E. 100 and E. E. 101.
- E. E. 107. **Communications Networks (4)**. Fall quarter. Prerequisite, concurrent registration in E. E. 102.
- E. E. 108. **Electric Transients (4)**. Spring quarter. Prerequisite, concurrent registration in E. E. 104.
- E. E. 112. **Illumination (4)**. Three lectures and one laboratory period a week, spring quarter. Prerequisite, E. E. 100.
- E. E. 113. **Electric Railways (4)**. Fall quarter. Prerequisite, concurrent registration in E. E. 102.

FOR GRADUATES

- E. E. 200. **Symmetrical Components (3)**. Fall quarter, Prerequisite, E. E. 104, or equivalent.

E. E. 202. Advanced Circuit Analysis (3). Winter Quarter.

E. E. 204. Operational Circuit Analysis (3). Spring quarter. Prerequisite, E. E. 104 or equivalent.

D. Mechanical Engineering

FOR GRADUATES AND ADVANCED UNDERGRADUATES

M. E. 100, 101, 102. Thermodynamics (9). Two lectures and one laboratory period a week, fall, winter, and spring quarters. Prerequisites, Math. 20, 21, 22; Phys. 3A, 4A, 5A.

M. E. 103, 104. Heating and Ventilation (6). Two lectures and one laboratory period a week, fall and winter quarters. Prerequisites, M. E. 100, 101, 102.

M. E. 105. Refrigeration (3). Two lectures and one laboratory period a week, spring quarter. Prerequisites, M. E. 100, 101, 102.

M. E. 109, 110, 111. Prime Movers (12). Two lectures and two laboratory periods a week, fall, winter, and spring quarters. Prerequisites, Mech. 50; M. E. 100, 101, 102.

M. E. 112, 113, 114. Mechanical Engineering Design (12). Two lectures and two laboratory periods a week, fall, winter, and spring quarters. Prerequisites, Mech. 50; M. E. 100, 101, 102.

M. E. 115, 116, 117. Mechanical Laboratory (6). One lecture and one laboratory period a week, fall, winter, and spring quarters.

M. E. 118, 119, 120. Airplane Structures (9). Fall, winter and spring quarters.

FOR GRADUATES

M. E. 200, 201, 202. Advanced Dynamics (6). Two hours a week, fall, winter, and spring quarters.

M. E. 203, 204, 205. Applied Elasticity (6). Two hours a week, fall, winter, and spring quarters.

M. E. 206, 207, 208. Advanced Aircraft Structures (6). Two hours a week, fall, winter, and spring quarters.

M. E. 209, 210, 211. Advanced Hydrodynamics and Aerodynamics (6). Two hours a week, fall, winter, and spring quarters.

M. E. 212, 213, 214. Advanced Thermodynamics and Heat Transfer (6). Two hours a week, fall, winter, and spring quarters.

M. E. 215. Seminar. Fall, winter, or spring quarter. Credit in accordance with work outlined.

M. E. 216. Research. Fall, winter, or spring quarter. Credit in accordance with work done.

ENGLISH LANGUAGE AND LITERATURE

Requirements for Advanced Degrees with Major in English (in addition to the general requirements of the Graduate School).

MASTER OF ARTS

1. Candidates for the degree of Master of Arts in the Department of English must demonstrate a reading knowledge of French or German at the time of admission, or not later than six months before taking the degree.

2. In the thesis the candidate will be expected to demonstrate his ability

to use the ordinary methods of research in the discovery of knowledge and to organize and present his findings in a clear, effective English style.

3. The final examination will be based in part upon the courses pursued and in part upon first-hand knowledge of all the literary works included in the departmental list of reading for the Master's degree. The examination will test the candidate's powers of analysis and criticism.

Major work in the department may be elected in any of the following fields, the requirements of which are listed below.

a. Major work in English literature: Old English, and at least nine hours from seminar courses in Medieval Romance, the Elizabethan period, the Eighteenth Century, the Romantic period, the Victorian period.

b. Major work in American literature: the seminar in American literature, and at least nine hours from the advanced undergraduate courses in American literature.

c. Major work in Drama: History of the Theatre, and at least nine hours from the following. Introduction to Comparative Literature (first quarter), Medieval Drama, Elizabethan Drama, Modern Drama, Contemporary Drama, American Drama, The Faust Legend, The Modern German Drama, Spanish Drama, Ibsen.

d. Major work in philology: Old English, Beowulf, Seminar in Old English Poetry, Middle English, Gothic, and either Medieval Romance or Chaucer.

e. Major work, designed chiefly for teachers in secondary schools: Old English, and at least nine hours from the following groups: Elizabethan Drama, or an Elizabethan seminar; Milton; the Eighteenth Century; either Prose and Poetry of the Romantic Age or Seminar in the Romantic Period; Contemporary American Prose and Poetry or the American seminar; Victorian Prose and Poetry or seminar in the Victorian Period; Advanced Writing.

DOCTOR OF PHILOSOPHY

Each candidate must have the following courses:

a. Five credit hours in Comparative Literature.

b. Six credit hours in Old English, Eng. 102, 103, and 212.

c. Six credit hours in the Middle English Language, Eng. 202, and Gothic, Eng. 203.

Candidates must pass a comprehensive written examination one year before they expect to be awarded degrees. This examination will include linguistics (morphology and phonology) and each of the major literary fields, from which the candidate may select two for particularly detailed examination, specifically: Old English, Middle English, the Drama, the Sixteenth and Seventeenth Centuries, the Eighteenth Century, the Nineteenth Century, American Literature.

FOR GRADUATES AND ADVANCED UNDERGRADUATES

Eng. 101. History of the English Language (5). Winter and summer quarters. Prerequisite, Eng. 15. Harman.

Eng. 102. Old English (3). Fall quarter. Prerequisite, Eng. 15. Ball.

Eng. 103. Beowulf (3). Winter quarter. Prerequisite, Eng. 102. Ball.

Eng. 104. Chaucer (3). Fall quarter. Prerequisites, Eng. 4, 5, 6. Harman.

Eng. 105. Medieval Drama in England (3). Prerequisites, Eng. 4, 5, 6.

(Not offered in 1944-1945.)

- Eng. 106. Elizabethan Drama (3) Spring quarter. Prerequisite, Eng. 4, 5, 6.
Zeeveld.
- Eng. 107. Renaissance Poetry and Prose (3). Summer quarter. Prerequisites,
Eng. 4, 5, 6. Zeeveld.
- Eng. 108. Milton (3). Summer quarter. Prerequisites, Eng. 4, 5, 6. Ball.
- Eng. 109. Literature of the Seventeenth Century to 1660 (3). Summer quarter.
Prerequisites, Eng. 4, 5, 6. Ball.
- Eng. 111, 112. Literature of the Eighteenth Century (3, 3). Prerequisites,
Eng. 4, 5, 6. (Not offered in 1944-1945.) Ball.
- Eng. 113, 114. Prose and Poetry of the Romantic Age (3, 3). Three hours a
week, fall and winter quarters. Prerequisites, Eng. 4, 5, 6. Weeks.
- Eng. 116, 117. Victorian Prose and Poetry (3, 3). Two hours a week, spring
and summer quarters. Prerequisites, Eng. 4, 5, 6. Weeks.
- Eng. 118. Modern and Contemporary British Poets (3). Winter quarter.
Prerequisites, Eng. 4, 5, 6. Macleod.
- Eng. 123. Modern Drama (3). Summer quarter. Prerequisites, Eng. 4, 5, 6.
(Not offered in 1944-1945.)
- Eng. 124. Contemporary Drama (3). Fall quarter. Prerequisites, Eng. 4, 5,
6. Andrews.
- Eng. 125. Emerson, Thoreau, and Whitman (3). Summer quarter. Prere-
quisites, Eng. 11, 12. (Not offered in 1944-1945.)
- Eng. 126. American Fiction (3). Prerequisites, Eng. 11, 12. (Not offered in
1944-1945.)
- Eng. 127. Contemporary American Poetry and Prose (3). Spring quarter.
Prerequisites, Eng. 11, 12. Macleod.
- Eng. 128. American Drama (3). Prerequisites, Eng. 11, 12. (Not offered in
1944-1945.)
- Eng. 135. Creative Writing (3). Fall and spring quarters. Prerequisites,
Eng. 4, 5, 6. Macleod.
- Eng. 136. Magazine Writing (3). Summer quarter. Prerequisites, Eng. 4, 5, 6.
Macleod.
- Eng. 137. Advanced Creative Writing (3). Winter quarter. Prerequisite,
English 135 or 136; open to other students by permission of the instructor
after submission of an original composition. Macleod.
- Eng. 140. Major American Poets (3). Prerequisites, Eng. 4, 5, 6. (Not
offered in 1944-1945.)
- Eng. 141. Major American Prose Writers (3). Prerequisites, Eng. 4, 5, 6.
(Not offered in 1944-1945.)

FOR GRADUATES

- Eng. 200. Seminar in Special Studies (2-5). Staff.
- Eng. 201. Research. Staff.
- Eng. 202. Middle English Language (3). Spring quarter. Prerequisites,
Eng. 102 and 103 Harman.
- Eng. 203. Gothic (3). Summer quarter. Prerequisite, Eng. 102. Harman.
- Eng. 204. Medieval Romance in England (3). (Not offered in 1944-1945.)
- Eng. 205. Seminar in Sixteenth Century Literature (3). Fall quarter.
Zeeveld.

- Eng. 207. Seminar in Shakespeare (3). Winter quarter. Prerequisites, Eng. 11, 12, or equivalent. Zeeveld.
- Eng. 208. Seminar in Eighteenth Century Literature (3). (Not offered in 1944-1945.)
- Eng. 209. Seminar in American Literature (3). (Not offered in 1944-1945.)
- Eng. 210. Seminar in Romantic Period (3). Spring quarter. Prerequisites, Eng. 113, 114, or equivalent satisfactory to the instructor. Weeks.
- Eng. 211. Seminar in the Victorian Period (2-3). Prerequisites, Eng. 116, 117, or the permission of the instructor. (Not offered in 1944-1945.)
- Eng. 212. Old English Poetry (2-3). Prerequisite, Eng. 102, or equivalent. (Not offered in 1944-1945.) Ball.
- Eng. 213. Bibliography (2). (Not offered in 1944-1945.)

ENTOMOLOGY

FOR GRADUATES AND ADVANCED UNDERGRADUATES

- Ent. 101. Economic Entomology (3). Winter quarter. Prerequisite, consent of the department. Cory.
- Ent. 103, 104. Insect Pests (4, 4). (Not offered in 1944-1945.) Cory.
- Ent. 105. Medical Entomology (3). Two lectures and one laboratory period a week, spring and summer quarters. Cory.
- Ent. 107. Insecticides (3). Winter quarter. Prerequisites, Ent. 1 and elementary chemistry. Ditman.
- Ent. 109. Insect Physiology (3). Three lectures a week and occasional demonstrations, fall quarter. Yeager.
- Ent. 110, 111. Special Problems (2, 2). Two hours a week, spring and summer quarters. Prerequisite to be determined by the department. Cory.
- Ent. 112. Seminar (1-3). Fall, winter, and spring quarters. Cory.
- Ent. 113. Photomicrography (2). Two laboratory periods a week and occasional lectures, winter quarter. Chisolm.

FOR GRADUATES

- Ent. 201. Advanced Entomology. Credit and prerequisites to be arranged. Fall, winter, spring, and summer quarters. Cory.
- Ent. 202. Research. Cory.
- Ent. 203. Insect Morphology (3-5). Fall quarter. Snodgrass.
- Ent. 205. Insect Ecology (3). Two lectures and on laboratory period a week, winter quarter. Langford.

HISTORY

Special Departmental Requirements for Degrees, in Addition to the General Requirements of the Graduate School

MASTER OF ARTS

Twelve to fifteen quarter hours of the total major course requirements of all candidates for this degree must be acquired in the general field of the thesis, i.e., either American or European History.

DOCTOR OF PHILOSOPHY

1. At least forty-five quarter hours of the total major course requirements must be acquired in the general field of the thesis, i.e., American History or European History.

2. At least fifteen quarter hours of the forty-five required for a minor in history must be taken at the University of Maryland.

3. Prospective candidates must pass preliminary written and oral examinations covering various fields of their major and minor subjects before admission to candidacy. Consult the head of the department for details.

FOR GRADUATES AND ADVANCED UNDERGRADUATES

A. American History

H. 5, 6, 7, or equivalent, are prerequisite for courses H. 101 to H. 142, inclusive.

H. 101. American Colonial History (3). Fall quarter. Baker-Crothers.

H. 103. The American Revolution (3). Winter quarter. Baker-Crothers.

H. 105, 106. Social and Economic History of the United States to 1860 (3, 3). Three hours a week. (Not offered in 1944-1945.) Baker-Crothers.

H. 115. The Old South (3). Fall quarter. Gewehr.

H. 116. The American Civil War (3). Winter quarter. Stampp.

H. 117. Reconstruction and the New South (3). Spring quarter. Stampp.

H. 121, 122. History of the American Frontier (3, 3). Three hours a week, winter and spring quarters. Gewehr.

H. 125. The United States in the Twentieth Century (3). Fall quarter. Freidel.

H. 127, 128. Diplomatic History of the United States (3, 3). Three hours a week. Spring and summer quarters, 1944. Stampp.

H. 129. The United States in World Affairs (3). Spring quarter. Gewehr.

H. 133, 134. The History of American Ideas (3, 3). Three hours a week, fall and winter quarters. Hofstadter.

H. 135, 136, 137. Constitutional History of the United States (9). Three hours a week. (Not offered in 1944-1945.)

H. 141, 142. History of Maryland (3, 3). Three hours a week, spring and summer quarters, 1944. Baker-Crothers.

H. 145, 146. Latin American History (3, 3). Three hours a week, winter and spring quarters. Prerequisites, 9 hours of fundamental courses. Freidel.

B. European History

- H. 151, 152. History of the Ancient Orient and Greece (3, 3). Three hours a week. (Not offered in 1944-1945.)
- H. 153. History of Rome (3). (Not offered in 1944-1945.)
- H. 155, 156, 157. Medieval Civilization (3, 3, 3). Three hours a week. (Not offered in 1944-1945.)
- H. 161, 162. The Foundations of Modern Culture (3, 3). Three hours a week. (Not offered in 1944-1945.)
- H. 165, 166. Revolutionary and Napoleonic Europe (3, 3). Three hours a week, fall and winter quarters. Prerequisites, H. 1, 2, 3, or equivalent. Freidel.
- H. 171, 172, 173. Europe in the Nineteenth Century, 1815-1919 (3, 3, 3). Three hours a week, fall, winter, and spring quarters. Prerequisites, H. 1, 2, 3, or equivalent. Freidel.
- H. 175, 176. Europe in the Twentieth Century (3, 3). Three hours a week. Prerequisites, H. 1, 2, 3, or equivalent. (Not offered in 1944-1945.)
- H. 179, 180. Diplomatic History of Europe Since 1871 (3, 3). Three hours a week. Prerequisites, H. 1, 2, 3, or equivalent. (Not offered in 1944-1945.)
- H. 181, 182. History of Central Europe (3, 3). Three hours a week. Prerequisites, H. 1, 2, 3, or equivalent. (Not offered in 1944-1945.)
- H. 185, 186, 187. History of the British Empire (3, 3, 3). Three hours a week. Prerequisites, H. 1, 2, 3, or equivalent. (Not offered in 1944-1945.) Silver.
- H. 191, 192. History of Russia (3, 3). Three hours a week. Prerequisites, H. 1, 2, 3, or equivalent. (Not offered in 1944-1945.)
- H. 193. History of the Near East. (3). Summer quarter. Prerequisites, H. 1, 2, 3, or equivalent.
- H. 195. The Far East (3). Summer quarter. Gewehr.
- H. 199. Proseminar in Historical Writing (3). Spring quarter. Hofstadter.

FOR GRADUATES

- H. 200. Research. Credit apportioned to amount of work. Staff.
- H. 201. Seminar in American History (2). Arranged. Staff.
- H. 205, 206. Topics in American Economic and Social History (3, 3). Arranged. Freidel.
- H. 211. The Colonial Period in American History (3). Arranged. Baker-Crothers.
- H. 215. The Old South (3). Arranged. Gewehr.
- H. 216. The American Civil War (3). Arranged. Gewehr.
- H. 221. History of the West (3). Arranged. Gewehr.
- H. 233. Topics in American Intellectual History (3). Arranged. Hofstadter.
- H. 250. Seminar in European History (2). Arranged. Staff.
- H. 255. Medieval Culture and Society (3). Arranged.
- H. 281. Topics in the History of Central Europe (3). Arranged.
- H. 285. Topics in the History of Modern England and Great Britain (3). Arranged. Silver.
- H. 297. Historians and Historical Criticism (3). Arranged. Staff.

HOME ECONOMICS

A. Textiles

FOR GRADUATES AND ADVANCED UNDERGRADUATES

- H. E. 110, 111. **Advanced Textiles (6).** One lecture and two laboratory periods a week, fall and winter quarters. Prerequisites, H. E. 10; Chem. 31, 32, 33, 34. Genger.
- H. E. 112. **Problems in Textiles (3).** One lecture and two laboratory periods a week, spring quarter. Prerequisite, H. E. 111. Genger.
- H. E. 113. **Consumer Problems in Textiles (3).** Two lectures and one laboratory period a week, fall and summer quarters. Prerequisite, H. E. 10, or consent of the instructor. Genger.

B. Clothing

FOR GRADUATES AND ADVANCED UNDERGRADUATES

- H. E. 120. **Pattern Design (3).** Three laboratory periods a week, winter and summer, 1945, quarters. Prerequisite, H. E. 20A or 20B. Mitchell.
- H. E. 121. **Children's Clothing (2).** Two laboratory periods a week, summer, 1944, and winter quarters. Prerequisite, H. E. 20A or 20B. Mitchell.
- H. E. 122. **Draping (5).** Five laboratory periods a week, fall and spring quarters. Prerequisites H. E. 20A, 71, or equivalent. McFarland.
- H. E. 124. **Tailoring (3).** Three laboratory periods a week, fall and spring quarters. Prerequisites, H. E. 20A or 20B. Mitchell.
- H. E. 125. **Problems in Clothing (3).** Spring and summer, 1945, quarters. Prerequisites, H. E. 122. McFarland.

C. Practical Art

FOR GRADUATES AND ADVANCED UNDERGRADUATES

- H. E. 170. **Interior Design (5).** Two lectures and three laboratory periods a week, fall, winter, and spring quarters. Prerequisites, H. E. 20, or equivalent. Brown.
- H. E. 172. **Advanced Interior Design (3).** Three laboratory periods a week, fall and winter quarters. Prerequisites, H. E. 70, 170, or equivalent. Curtiss.
- H. E. 174. **Merchandise Display (3).** Three laboratory periods a week, fall, winter, spring, and summer quarters. Prerequisites, H. E. 20, or equivalent. Curtiss.
- H. E. 175. **Advanced Merchandise Display (3).** Three laboratory periods a week, fall, winter, spring, and summer quarters. Prerequisites, H. E. 70, 174. Curtiss.
- H. E. 176. **Advertising Layout and Store Coordination (3).** Three laboratory periods a week, fall quarter. Prerequisites, H. E. 70, or equivalent. Curtiss.
- H. E. 178. **Radio in Retailing (3).** Spring quarter. Prerequisites, Speech 1, 2; Eng. 1, 2, 3; Econ. 150; H. E. 174. Curtiss.

- H. E. 185, 186. **Individual Problems in Design** (6). Three hours a week, fall and winter; spring and summer quarters. H. E. 70, 71, 170, 172, 173, must precede or parallel this course. Curtiss.

D. Home and Institutional Management

FOR GRADUATES AND ADVANCED UNDERGRADUATES

- H. E. 150, 151, 152. **Management of the Home** (9). Three hours a week, fall, winter, and spring quarters. England.
- H. E. 153. **Practice in Management of the Home** (3). Fall, winter, spring, and summer quarters. Prerequisites, H. E. 150, 151, 152. England.
- H. E. 160. **Institution Organization and Management** (3). Two lectures and one laboratory period a week, fall quarter. Prerequisites, H. E. 31, 32, 33, 150, 151, 152.
- H. E. 161. **Institution Equipment and Food Purchasing** (4). Three lectures and one laboratory period a week, winter quarter.
- H. E. 162. **Accounting and Food Control** (3). Two lectures and one laboratory period a week spring quarter.
- H. E. 163. **Institution Cookery** (5). Two lectures and three laboratory periods a week, winter and spring quarters. Prerequisites, H. E. 31, 32, 33, 131, 135.
- H. E. 165. **The School Lunch** (3). Two lectures and one laboratory period a week, spring and summer quarters. Prerequisites, H. E. 31, 32, 33, 134 or 135. England.
- H. E. 166. **Advanced Institution Management** (3). Two lectures and one laboratory period a week, winter and spring quarters. Prerequisites, H. E. 160, 161, 162. Mount.

E. Foods and Nutrition

FOR GRADUATES AND ADVANCED UNDERGRADUATES

- H. E. 130. **Food Economics** (2). One lecture and one laboratory period a week, winter quarter. Prerequisites, H. E. 31, 32, 33. Brown.
- H. E. 131. **Meal Service** (3). One lecture and two laboratory periods a week, fall, winter, spring, and summer quarters. Prerequisites, H. E. 31, 32, 33. Brown.
- H. E. 132. **Demonstrations** (3). Three laboratory periods a week, spring and winter quarters. Prerequisites, H. E. 10, 31, 32, 33. Lapp.
- H. E. 133. **Experimental Foods** (5). Two lectures and three laboratory periods a week, spring and summer, 1945, quarters. Prerequisites, H. E. 31, 32, 33, 130, 131; Chem. 13, 14, 15, 16. Brown.
- H. E. 134. **Advanced Foods** (5). Two lectures and three laboratory periods a week, spring quarter. Prerequisites, H. E. 31, 32, 33.
- H. E. 135. **Nutrition** (5). Fall and spring quarters. Prerequisites, H. E. 31, 32, 33; Chem. 13, 14, 15, 16.
- H. E. 136. **Dietetics** (5). Three lectures and two laboratory periods a week, fall and winter quarters. Prerequisite, H. E. 135. Neylan.

- H. E. 137. Diet in Disease (5).** Four lectures and one laboratory period a week, winter quarter. Prerequisite, H. E. 131. Hagel.
- H. E. 138. Child Nutrition (4).** Three lectures and one laboratory period a week, spring and summer quarters. Prerequisite, H. E. 135.

FOR GRADUATES

- H. E. 230. Readings in Nutrition (3).** Fall quarter.
- H. E. 231. Seminar in Nutrition (3).** Spring and summer, 1945, quarters.
- H. E. 232. Advanced Experimental Foods (5).** Two lectures and three laboratory periods a week, winter quarter. Brown.
- H. E. 233. Seminar in Food Preparation (3-5).** Spring quarter.
- H. E. 234. Research.** Credit to be determined by amount and quality of work done.

F. Home Economics Extension Methods

FOR GRADUATES AND ADVANCED UNDERGRADUATES

- H. E. 190. Methods in Home Economics Extension (3).** Spring quarter
Kellar and Assistants.

HORTICULTURE

FOR GRADUATES AND ADVANCED UNDERGRADUATES

- Hort. 101, 102. Technology of Horticultural Plants—Fruits (3, 3).** Three hours a week, fall and winter quarters. Prerequisite, Plt. Phys. 101. Haut.
- Hort. 103, 104. Technology of Horticultural Plants—Vegetables (3, 3).** Three hours a week, fall and winter quarters. Prerequisite, Plt. Phys. 101. Mahoney.
- Hort. 105. Technology of Horticultural Plants—Ornamentals (3).** Fall and winter quarters. Prerequisite, Plt. Phys. 101. Haut.
- Hort. 106. World Fruits and Nuts (3).** Winter and spring quarters. Haut.
- Hort. 107. Plant Materials (2).** One lecture and one laboratory period a week, fall quarter. Thurston.
- Hort. 108. Plant Materials (2).** One lecture and one laboratory period a week, winter quarter. Thurston.
- Hort. 109. Plant Materials (2).** One lecture and one laboratory period a week, spring quarter. Thurston.
- Hort. 112. Canning Crops Technology (4).** Three lectures and one laboratory period a week, fall quarter. Given in alternate years. Mahoney, Walls.
- Hort. 114. Systematic Pomology (3).** Two lectures and one laboratory period a week, fall quarter. Given in alternate years. Haut.
- Hort. 116. Systematic Olericulture (3).** Two lectures and one laboratory period a week, summer quarter. Walls.

FOR GRADUATES

- Hort. 201. Experimental Pomology (3). Fall and winter quarters, Prerequisite, Plt. Phys. 101. Schrader.
- Hort. 202. Experimental Pomology (3). Spring and summer quarters. Prerequisite, Plt. Phys. 101. Schrader.
- Hort. 203. Experimental Olericulture (3). Fall and winter quarters. Prerequisite, Plt. Phys. 101. Mahoney.
- Hort. 204. Experimental Olericulture (3). Spring and summer quarters. Prerequisite, Plt. Phys. 101. Mahoney.
- Hort. 205. Experimental Pomology (3). Spring quarter. A continuation of Hort. 201, 202. Schrader.
- Hort. 206. Experimental Olericulture (3). Spring quarter. Prerequisites, Zool. 120, Plt. Phys. 101, or equivalents. Mahoney.
- Hort. 207. Methods of Horticultural Research (3). Two lectures and one laboratory period a week, fall and winter quarters. Staff.
- Hort. 208. Research. Credit given according to work done. Staff.
- Hort. 209. Seminar (1). Fall, winter, and spring quarters. Staff.

MATHEMATICS

A. Algebra

FOR GRADUATES AND ADVANCED UNDERGRADUATES

- Math. 100, 101, 102. Higher Algebra (9). Three hours a week, winter, spring, and summer, 1945, quarters. Prerequisite, Math 22, or equivalent. Vanderslice.
- Math. 103, 104. Introduction to Modern Algebra (6). Three hours a week. Prerequisite, Math 22, or equivalent. (Not offered in 1944-1945.) Jackson.

FOR GRADUATES

- Math. 200, 201, 202. Algebra (9). Three hours a week. (Not offered in 1944-1945.) Jackson.
- Math. 250. Selected Topics in Algebra (3). Arranged.

B. Analysis

FOR GRADUATES AND ADVANCED UNDERGRADUATES

- Math. 110, 111, 112. Advanced Calculus (9). Three hours a week. Winter, spring, and summer, 1945, quarters. Prerequisite, Math 22, or equivalent. Martin.
- Math. 113, 114, 115. Differential Equations (9). Three hours a week, spring, summer, and fall quarters, 1944. Prerequisite, Math. 22, or equivalent. Vanderslice.

FOR GRADUATES

- Math. 210, 211, 212. Functions of a Complex Variable (9). Three hours a week, winter, spring, summer, 1945, quarters. Prerequisites, Math. 110, 111, 112, or equivalent. Hall.
- Math. 213, 214, 215. Functions of a Real Variable (9). Three hours a week, spring, summer, fall quarters, 1944. Hall.
- Math. 251. Selected Topics in Analysis (3). Arranged.

C. Geometry

FOR GRADUATES AND ADVANCED UNDERGRADUATES

- Math. 120, 121.** Advanced Analytic Geometry (6). Three hours a week, spring and summer quarters, 1944. Prerequisite, Math. 22, or equivalent.
Dantzig.
- Math. 123, 124, 125.** Introduction to Projective Geometry (9). Three hours a week, spring summer, and fall quarters, 1944. Prerequisite, Math. 22, or equivalent.
Jackson.
- Math. 126, 127.** Introduction to Differential Geometry (6). Three hours a week. Prerequisite, Math. 22, or equivalent. (Not offered in 1944-1945.)
Vanderslice.

FOR GRADUATES

- Math. 220, 221.** Differential Geometry (6). Three hours a week. Prerequisites, Math. 126, 127, or equivalent. (Not offered in 1944-1945.)
Jackson.
- Math. 223, 224.** Topology (6). Three hours a week, winter and spring quarters. Prerequisites, Math. 110, 111, 112, or equivalent.
Hall.
- Math. 252.** Selected Topics in Geometry and Topology (3). Arranged.

D. Applied Mathematics

FOR GRADUATES AND ADVANCED UNDERGRADUATES

- Math. 130, 131, 132.** Analytic Mechanics (9). Three hours a week. Prerequisite, Math. 22, or equivalent. (Not offered in 1944-1945.)
Martin.
- Math. 133, 134.** Vector Analysis (6). Three hours a week. Prerequisite, Math. 22, or equivalent. (Not offered in 1944-1945.)
Dantzig.
- Math. 135, 136.** Probability (6). Three hours a week. Prerequisite, Math. 22, or equivalent. (Not offered in 1944-1945.)
Vanderslice.
- Math. 137, 138.** Mathematical Statistics (6). Three hours a week. Prerequisite, Math. 22, or equivalent. (Not offered in 1944-1945.)
Vanderslice.

FOR GRADUATES

- Math. 230, 231, 232.** Applied Mathematics (9). Three hours a week, spring, summer and fall quarters, 1944.
Martin.
- Math. 233, 234.** Tensor Analysis (6). Three hours a week. Prerequisites, Math. 126, 127, or equivalent. (Not offered in 1944-1945.)
Vanderslice.
- Math. 253.** Selected Topics in Applied Mathematics (3). Arranged.

E. History

FOR GRADUATES

- Math. 240, 241.** Seminar in the History of Mathematics (4). Two hours a week. Arranged.
Dantzig.

F. Colloquium and Research

FOR GRADUATES

- Math. 260. Colloquium. Fall, winter, and spring quarters. Staff.
 Math. 270. Research, Summer, fall, winter, and spring quarters. Staff.

MODERN LANGUAGES

A. French

FOR GRADUATES AND ADVANCED UNDERGRADUATES

- French 101. French Literature of the Sixteenth Century (3). Falls.
 French 104, 105, 106. French Literature of the Seventeenth Century (3, 3, 3).
 Three hours a week. Wilcox.
 French 107, 108. French Literature of the Eighteenth Century (3, 3). Three
 hours a week. Falls.
 French 110, 111, 112. French Literature of the Nineteenth Century (3, 3, 3).
 Three hours a week. Wilcox.
 French 113, 114, 115. French Literature of the Twentieth Century (3, 3, 3).
 Three hours a week. Liotard.
 French 121, 122, 123. Advanced Composition (3, 3, 3). Three hours a week.
 Prerequisites, French 60, 61. Falls.

FOR GRADUATES

- French 201. Research. Credits determined by work accomplished. Staff.
 French 202. Diderot and the Encyclopaedists (5). Falls.
 French 204. Georges Duhamel, Poet, Dramatist, Novelist (5). Falls.
 French 205. French Literature of the Middle Ages and the Renaissance (5).
 Correa.
 French 207. The French Novel in the First Half of the Nineteenth Century
 (5). Falls.
 French 209. The French Novel in the Second Half of the Nineteenth Cen-
 tury (5). Falls.
 French 213. Introduction to Old French (3). Falls.
 French 215. Seminar. Arranged. Staff.
 French 221, 222. Reading Course. Arranged. Falls.

B. German

FOR GRADUATES AND ADVANCED UNDERGRADUATES

- German 107, 108, 109. German Literature of the Eighteenth Century (3, 3, 3).
 Three hours a week. Prahll.
 German 110, 111, 112. German Literature of the Nineteenth Century (3,
 3, 3). Three hours a week. Prahll.
 German 113, 114, 115. Contemporary German Literature (3, 3, 3). Three
 hours a week. Prahll.

FOR GRADUATES

German 201.	Research. Credit determined by work accomplished.	Staff.
German 202.	The Modern German Drama (5).	Prahl.
German 203.	Schiller (5).	Prahl.
German 204.	Goethe's <i>Faust</i> (3).	Zucker.
German 205.	Goethe's Works Outside of <i>Faust</i> (3).	Zucker.
German 206.	The Romantic Movement (5).	Prahl.
German 210.	Seminar. Arranged.	Staff.
German 214.	Middle High German (5).	Banta.
German 220, 221.	Reading Course. Arranged.	Prahl.
German 231.	Introduction to Indo-European Linguistics (5).	Banta.

C. Spanish

FOR GRADUATES AND ADVANCED UNDERGRADUATES

Spanish 101.	Epic and Ballad (3).	Correa.
Spanish 104, 105, 106.	The Golden Age (3, 3, 3). Three hours a week.	Correa.
Spanish 107.	The Spanish Mystics (3).	
Spanish 108.	Lope de Vega (3).	
Spanish 109.	Cervantes (3).	
Spanish 110, 111, 112.	Spanish Literature of the Nineteenth Century (3, 3, 3). Three hours a week.	Rand.
Spanish 113, 114, 115.	Modern Literature (3, 3, 3). Three hours a week.	Correa.
Spanish 116.	Twentieth Century Drama (3).	
Spanish 121, 122, 123.	Advanced Composition (3, 3, 3). Three hours a week. Prerequisite, Spanish 60 or the consent of the instructor.	Correa.
Spanish 151, 152, 153.	Latin-American Literature (3, 3, 3). Three hours a week.	Correa.

FOR GRADUATES

Spanish 201.	Research. Credit determined by work accomplished.	Correa.
Spanish 202.	The Golden Age in Spanish Literature (3).	Correa.
Spanish 203.	Spanish Poetry (3).	Correa.
Spanish 204.	Spanish Poetry (3).	Correa.
Spanish 210.	Seminar. Arranged.	Correa.
Spanish 213.	Introduction to Old Spanish (3).	Rand.
Spanish 220, 221.	Reading Course. Arranged.	Correa.

PHYSICS

FOR GRADUATES AND ADVANCED UNDERGRADUATES

Phys. 104.	Advanced Experiments (3). One lecture and two laboratory periods a week. Prerequisites, Phys. 4A, 5A. (Not offered in 1944-1945.)	
Phys. 105, 106, 107.	Theoretical Mechanics (6). Three lectures a week, fall, winter, and spring quarters. Prerequisites, Phys. 4A, 5A; Math. 20.	Morgan.

- Phys. 108. Optics (5).** Three lectures and two laboratory periods a week, spring quarter; repeated every third quarter. Prerequisites, Phys. 4A, 5A; Math. 20.
- Phys. 109, 110. Electricity (10).** Two lectures and two laboratory periods a week, spring and summer quarters. Prerequisites, Phys. 4A, 5A; Math. 20.
- Phys. 111. Sound (5).** Three lectures and two laboratory periods a week. Prerequisites, Phys. 4A, 5A; Math. 20. (Not offered in 1944-1945.)
- Phys. 112, 113, 114. Electron Physics (9).** Two lectures and one laboratory period a week. Prerequisites, Phys. 4A, 5A; Math. 20. (Not offered in 1944-1945.)
- Phys. 115. Heat (5).** Three lectures and two laboratory periods a week, fall quarter; repeated every third quarter. Prerequisites, Phys. 4A, 5A; Math. 20.
- Phys. 117, 118. Applied Mechanics (6).** Three lectures a week. Prerequisites, Phys. 4A, 5A. (Not offered in 1944-1945.)
- Phys. 119, 120, 121. High Frequency Phenomena (9).** Two lectures and one laboratory period a week. Prerequisites, Phys. 4A, 5A; Math. 20. (Not offered in 1944-1945.)

FOR GRADUATES

- Phys. 201, 202, 203. Dynamics (9).** Three lectures a week. Brickwidde.
- Phys. 204, 205. Electrodynamics (4).** Two lectures a week. (Not offered in 1944-1945.)
- Phys. 206, 207. Physical Optics (4).** Two lectures a week. Myers.
- Phys. 208, 209, 210. Thermodynamics (6).** Two lectures a week, fall, winter, and spring quarters. (Not offered in 1944-1945.)
- Phys. 211, 212, 213. Statistical Mechanics and the Kinetic Theory of Gases (6).** Two lectures a week. (Not offered in 1944-1945.)
- Phys. 214, 215, 216. Quantum Mechanics (9).** Three lectures a week, fall, winter, and spring quarters. (Not offered in 1944-1945.)
- Phys. 217, 218. Atomic Structure (4).** Two lectures a week. (Not offered in 1944-1945.)
- Phys. 219, 220. Molecular Spectra (4).** Two lectures a week. Myers.
- Phys. 221, 222, 223. X-Rays and Crystal Structure (9).** Three lectures a week, fall, winter, and spring quarters. (Not offered in 1944-1945.)
- Phys. 224. Application of X-Ray and Electron Diffraction Methods (4).** Two laboratory periods a week, winter and spring quarters. Morgan.
- Phys. 225, 226, 227. Modern Physics (9).** Three lectures a week. (Not offered in 1944-1945.)
- Phys. 228. Seminar (1).** Fall, winter and spring quarters.
- Phys. 250. Research.** Credit according to work done.

POLITICAL SCIENCE

FOR GRADUATES AND ADVANCED UNDERGRADUATES

- Pol. Sci. 102. International Law (3).**
- Pol. Sci. 105. Recent Far Eastern Politics (3).**

Pol. Sci. 124. Legislatures and Legislation (3).

Pol. Sci. 131. Constitutional Law (3).

Pol. Sci. 141. History of Political Theory (3).

Pol. Sci. 142. Recent Political Theory (3).

Pol. Sci. 144. American Political Theory (3).

FOR GRADUATES

Pol. Sci. 201, 202. Seminar in International Organization (2, 2). Two hours a week.

Pol. Sci. 251. Bibliography of Political Science (2).

Pol. Sci. 261. Research.

POULTRY HUSBANDRY

FOR GRADUATES AND ADVANCED UNDERGRADUATES

P. H. 104. Poultry Marketing Problems (3). Three lectures, demonstration and quiz periods a week, fall quarter. Gwin.

P. H. 105. Egg Marketing Problems (3). Three lectures, demonstration and quiz periods a week, winter quarter. C win

P. H. 107. Poultry Industrial and Economic Problems (3). Fall quarter. Staff.

P. H. 108. Special Poultry Problems (1-2). Assigned problems, fall, winter and spring quarters. Staff.

FOR GRADUATES

P. H. 201. Advanced Poultry Genetics (3). Spring quarter. Prerequisite, P. H. 51 or equivalent. Jull.

P. H. 202. Advanced Poultry Nutrition (3). Two lectures and one laboratory period a week, spring quarter. Prerequisite, P. H. 52, or equivalent.

P. H. 203. Physiology of Reproduction of Poultry (3). Two lectures and one laboratory period a week, fall quarter. Prerequisite, P. H. 56, or equivalent. Phillips.


P. H. 204. Seminar (1). Fall, winter, and spring quarters. Staff.

P. H. 205. Poultry Literature (1-4). Fall, winter, and spring quarters. Staff.

P. H. 206. Research. Credit in accordance with work done. Staff.

PSYCHOLOGY

FOR GRADUATES AND ADVANCED UNDERGRADUATES

- Psych. 118.** Psychology of Adolescence (3). Spring quarter. Prerequisite, Psych. 18. Thurston.
- Psych. 140.** Psychological Problems in Market Research (3). Prerequisite, Psych. 19. (Not offered in 1944-1945.)
- Psych. 141.** Psychology in Advertising and Selling (3). Prerequisite, Psych. 19. (Not offered in 1944-1945.)
- Psych. 147.** Psychological Problems in Aviation (3). Prerequisite, Psych. 29. (Not offered in 1944-1945.)
- Psych. 149.** Legal Psychology (3). Prerequisite, Psych. 17. (Not offered in 1944-1945.)
- Psych. 150.** Advanced Social Psychology (3). Fall quarter. Prerequisite, Psych. 15. Edwards.
- Psych. 155.** Psychology of Personality (3). Winter and spring quarters. Prerequisite, Psych. 15, or permission of instructor. Edwards.
- Psych. 156.** Pre-seminar in Advanced Personality (2). Spring quarter. Prerequisite, Psych. 155, or permission of instructor. Edwards.
- Psych. 157.** Psychological Aspects of the Post War Situation. (3). Fall quarter. Prerequisite, permission of instructor. Sprowls.
- Psych. 159.** Psychology of Propaganda (3). Winter quarter. Prerequisite, Psych. 15, or permission of instructor. Edwards.
- Psych. 160, 161.** Psychology of Personnel (3, 3). Fall and winter quarters. Prerequisite, Psych. 19, or permission of instructor. Clark.
- Psych. 165.** Industrial Psychology (3). Spring quarter. Prerequisite, Psych. 16. Clark.
- Psych. 170.**  Abnormal Psychology (3). Winter quarter. Prerequisite, Psych. 17. Sprowls, Hall.
- Psych. 172.** Tests and Measurements (5). Winter and summer quarters. Prerequisite, Psych. 29. Thurston.
- Psych. 174.** Advanced Psychological Testing (5). Fall and winter quarters. Prerequisite, Psych. 172.
- Psych. 178.** Vocational Orientation (3). Prerequisite, Psych. 172. (Not offered in 1944-1945.)
- Psych. 179.** Detection and Treatment of Defects in Reading (3). Prerequisite, permission of instructor. (Not offered in 1944-1945.)
- Psych. 180.** Advanced Educational Psychology (3). Prerequisite, Psych. 80. (Not offered in 1944-1945.)
- Psych. 190.** Psychology of Learning (3). Winter quarter. Prerequisite, Psych. 29.
- Psych. 192.** Psychology of Early Man (3). Spring quarter. Prerequisite, Psych. 15, or permission of instructor. Sprowls.
- Psych. 194.** History of Psychology (3). Spring quarter. Prerequisite, 9 hours of psychology.

- Psych. 195.** Minor Problems in Psychology (2-3). Fall, winter, spring, and summer quarters. Staff.
- Psych. 199.** Proseminar: Contemporary Problems in Psychology. (Not offered in 1944-1945.)

FOR GRADUATES.

- Psych. 200.** Research in Psychology (3). Fall, winter, spring and summer quarters. Staff.
- Psych. 240.** Seminar in Current Psychotechnological Problems (3). (Not offered in 1944-1945.)
- Psych. 245.** Advanced Psychological Problems in Market Research (3). (Not offered in 1944-1945.)
- Psych. 257, 258.** Seminar in Psychology of Morale in Wartime (3, 3). Three hours a week, fall and winter quarters. Sprowls.
- Psych. 260.** Seminar in Personnel Psychology (2). Spring quarter. Clark.
- Psych. 275, 276, 277, 278.** Participation in Testing Clinic (2-4 each quarter). Fall, winter, spring, and summer quarters. Thurston.
- Psych. 272.** Development and Validation of Psychological Tests (3). (Not offered in 1944-1945.)
- Psych. 274.** Field Work in Clinical Psychology of the Abnormal (3-5). Spring quarter. Sprowls.
- Psych. 279.** Occupational Psychology (3). (Not offered in 1944-1945.)
- Psych. 280.** Seminar in Educational Psychology (3). (Not offered in 1944-1945.) Sprowls.
- Psych. 290.** Problems in Experimental Design in Psychology (2). Spring quarter. Edwards.

SOCIOLOGY

FOR GRADUATES AND ADVANCED UNDERGRADUATES

- Soc. 101.** Social Stratification (3). Summer and winter quarters. Prerequisite, Soc. 1 or 3, or consent of instructor. Mills.
- Soc. 103.** Rural Sociology (3). Summer quarter. Prerequisite, consent of instructor. Form.
- Soc. 104.** Urban Sociology (3). Winter quarter. Form.
- Soc. 105.** Population Problems (3). Summer and fall quarters. Prerequisite, Soc. 3, or consent of instructor.
- Soc. 106.** Regional Sociology (3). Winter quarter, Prerequisite, Soc. 3, or consent of instructor. Form.
- Soc. 107.** Ethnic Minority Groups (3). Summer quarter, Prerequisite, Soc. 3, or consent of instructor. Lejins.
- Soc. 108.** World Population Problems (3). Winter quarter. Prerequisite, Soc. 105, or consent of instructor. Lejins.
- Soc. 109.** World Survey of Rural Organization (3). Prerequisite, Soc. 103, or consent of instructor. (Not offered in 1944-1945.)

- Soc. 110. Sociology of the Professions (3).** Fall and spring quarters. Prerequisite, Soc. 1 or 3, or consent of instructor. Mills.
- Soc. 112. Sociology of Communication (3).** Summer and winter quarters. Prerequisite, Soc. 1 or 3, or consent of instructor. Mills.
- Soc. 120. Community Disorganization (3).** Prerequisite, Soc. 52, or consent of instructor. (Not offered in 1944-1945.)
- Soc. 121. Community Welfare Planning (3).** Prerequisite, Soc. 120, or consent of instructor. (Not offered in 1944-1945.)
- Soc. 123. Public Welfare Services (3).** Prerequisite, Soc. 71 and 81, or consent of instructor. (Not offered in 1944-1945.)
- Soc. 124. Public Welfare Administration (3).** Prerequisite, Soc. 123, or consent of instructor. (Not offered in 1944-1945.)
- Soc. 125. Sociology of War (3).** Fall quarter. Prerequisite, consent of instructor. Lejins.
- Soc. 126. Juvenile Delinquency (3).** Fall and spring quarters. Prerequisite, Soc. 72, or consent of instructor. Lejins.
- Soc. 127. Community Programs of Crime Control (3).** Fall quarter. Prerequisite, Soc. 72, or consent of instructor. Lejins.
- Soc. 128. Institutional Treatment of Criminals and Delinquents (3).** Spring quarter. Prerequisite, Soc. 72, or consent of instructor. Lejins.
- Soc. 130. Recent Social Thought (3).** Fall and spring quarters. Prerequisite, Soc. 1 or 3, or consent of instructor. Mills.
- Soc. 135. Sociology of Law (3).** Spring quarter. Prerequisite, Soc. 3, or consent of instructor. Lejins.
- Soc. 136. Sociology of Religion (3).** Spring quarter. Prerequisite, Soc. 3, or consent of instructor. Form.
- Soc. 140. Design of investigation in Sociology (3).** Fall quarter. Prerequisite, Soc. 3, or consent of instructor. Mills.
- Soc. 141. Introduction to Social Research and Statistics (3).** Summer and spring quarters. Prerequisite, Soc. 3, or consent of instructor. Form.
- Soc. 142. Statistical Problems in Social Analysis (3).** Fall quarter. Prerequisite, consent of instructor. Form.
- Soc. 150. Field Practice in Social Work (3).** Prerequisite, Soc. 81, or consent of instructor. (Not offered in 1944-1945.)

FOR GRADUATES

- Soc. 200. Seminar in Methodology (3).** Fall and spring quarters. Staff.
- Soc. 201. Seminar in Systematic Sociology (3).** (Not offered in 1944-1945.)
- Soc. 202. Sociological Theory (3).** Fall quarter. Mills.
- Soc. 203. Sociology of Knowledge (3).** Winter quarter. Mills.
- Soc. 204. Social Organization (3).** (Not offered in 1944-1945.)
- Soc. 205. Community Organization (3).** (Not offered in 1944-1945.)
- Soc. 206. Comparative Sociology (3).** Summer quarter. Mills.
- Soc. 207. Rural-Urban Sociology (3).** (Not offered in 1944-1945.)

- Soc. 210. **Special Problems of Population** (3). (Not offered in 1944-1945.)
- Soc. 211. **Advanced Regional Sociology** (3). (Not offered in 1944-1945.)
- Soc. 215. **Seminar in Sociology of the Professions** (3). Spring quarter. Mills.
- Soc. 216. **Sociology of the Family** (3). Summer quarter. Lejins.
- Soc. 217. **Seminar in the Sociology of the Law** (3). Spring quarter. Lejins.
- Soc. 218. **Sociological Problems of Leadership** (3). (Not offered in 1944-1945.)
- Soc. 221. **Advanced Criminology** (3). Fall quarter. Lejins.
- Soc. 222. **Recent Criminological Theories** (3). Winter quarter. Lejins.
- Soc. 223. **Juvenile Delinquency** (3). Spring quarter. Lejins.
- Soc. 250. **Research in Sociology**. Credit apportioned to work accomplished.
Summer, fall, winter, and spring quarters. Staff.

SPEECH

FOR GRADUATES AND ADVANCED UNDERGRADUATES

- Speech 101. **Introduction to Radio** (3). Two lectures and one laboratory period a week, fall, spring, and winter quarters. Admission by audition or consent of instructor. Ehrensberger.
- Speech 102. **Radio Program Production** (3). Laboratory course, spring quarter. Prerequisite, Speech 101, or consent of instructor. Ehrensberger.
- Speech 103, 104. **Speech Composition** (6). Three hours a week, fall and winter quarters. (Not offered in 1944-1945.) Ehrensberger.
- Speech 105. **Speech Pathology** (3). Fall quarter. Hutcheson.
- Speech 106. **Speech Clinic** (3). Two lectures and one laboratory period a week, winter quarter. Prerequisite, Speech 105. Hutcheson.
- Speech 107. **Advanced Oral Reading** (3). Spring quarter. Prerequisite, Speech 10. Provenson.
- Speech 108. **Teacher-Problems in Speech** (5). Summer quarter. Hutcheson.

VETERINARY SCIENCE

FOR GRADUATES AND ADVANCED UNDERGRADUATES

- V. S. 101. **Comparative Anatomy** (5). Summer and winter quarters.
- V. S. 102. **Animal Hygiene** (5). Fall and spring quarters.
- V. S. 107. **Poultry Hygiene** (4). Three lectures and one laboratory period a week, fall and spring quarters.
- V. S. 108. **Avian Anatomy** (4). Three lectures and one laboratory period a week, summer and winter quarters.

FOR GRADUATES

- V. S. 201. **Animal Disease Problems** (2-8). Arranged.
- V. S. 202. **Animal Disease Research**.

ZOOLOGY

FOR GRADUATES AND ADVANCED UNDERGRADUATES

- Zool. 101. Mammalian Anatomy (3).** Three laboratory periods a week, fall and spring quarters. Phillips.
- Zool. 102, 103. General Animal Physiology (6).** Two lectures and one laboratory period a week, winter and spring quarters. Either quarter may be taken first, but both quarters must be completed before credit is granted. Phillips.
- Zool. 104. Genetics(3).** Fall and winter quarters. Burhoe.
- Zool. 108. Animal Histology (3).** One lecture and two laboratory periods a week, fall and spring quarters. Prerequisite, one course in zoology. Littleford.
- Zool. 120. Advanced Genetics (3).** One lecture and two laboratory periods a week, winter quarter. Prerequisite, Zool. 104. Burhoe.
- Zool. 121. Principles of Animal Ecology (3).** Two lectures and one laboratory period a week, fall and spring quarters. Prerequisite, one course in zoology. Tressler.

FOR GRADUATES

- Zool. 200. Marine Zoology (5).** Three lectures and two laboratory periods a week, fall quarter.
- Zool. 201. Microscopical Anatomy (5).** Three lectures and two laboratory periods a week, fall quarter. Littleford.
- Zool. 203. Advanced Embryology (5).** Three lectures and two laboratory periods a week, fall quarter. Burhoe.
- Zool. 204. Advanced Animal Physiology (5).** Three lectures and two laboratory periods a week, winter quarter. Phillips.
- Zool. 205. Hydrobiology (5).** Three lectures and two laboratory periods a week, spring quarter. Tressler.
- Zool. 206. Research.** Credit to be arranged. Staff.
- Zool. 207. Seminar (1).** Summer, fall, winter and spring quarters. Staff.

CHESAPEAKE BIOLOGICAL LABORATORY

This laboratory, located in the center of the Chesapeake Bay country, is on Solomons Island, Maryland. It is sponsored by the University of Maryland in cooperation with the Maryland Conservation Department, Washington College, Johns Hopkins University and Western Maryland College, in order to afford a center for wild life research and study where facts tending toward a fuller appreciation of nature may be gathered and disseminated. The program projects a comprehensive survey of the biota of the Chesapeake region.

The laboratory is open throughout the year. Ordinarily courses are offered for advanced undergraduate and graduate students, during a six-week summer session, in the following subjects. Economic Zoology, Protozoology Invertebrates, Ichthyology, Algae, and Diatoms. Not more than two courses may be taken by a student, who must meet the requirements of the Department of Zoology as well as those of the laboratory before matriculation. Classes are limited to eight. Students pursuing special research may establish residence for the summer, or for the entire year. Formal courses have been temporarily suspended.

Laboratory facilities; boats of various types fully equipped with pumps, nets, dredges and other apparatus; and shallow water collecting devices, are available for the work without cost to the students.

For further information about work at the Chesapeake Biological Laboratory, apply to Dr. R. V. Truitt, Director, Solomons, Maryland.

GRADUATE COURSES IN THE PROFESSIONAL SCHOOLS AT BALTIMORE

The academic calendars and fees of the professional schools in Baltimore will be found in the separate catalogues published by these schools.

SCHOOL OF MEDICINE

ANATOMY

Minors

Anat. 101. Human Gross Anatomy (10). Total number of hours, approximately 350. Six conferences and lectures, Eighteen laboratory hours per week throughout the first semester of every medical school year.

Uhlenhuth, Figge, Evans, Krahle.

Anat. 102. Mammalian Histology (6). Two lectures, ten laboratory hours per week, throughout the first semester of every medical school year.

Davis, Lutz, Harne, Hard.

Anat. 103. Human Neurology (4). Three lectures and six laboratory hours per week for ten weeks of the second semester of every medical school year. Prerequisite, Anat. 102, or equivalent.

Davis, Lutz, Harne, Hard.

Majors

Anat. 201. Human Gross Anatomy. Number of credits by arrangement. Same course as Anat. 101, but with additional work of a more advanced nature.

Uhlenhuth, Figge.

Anat. 202. Mammalian Histology. Number of credits by arrangement. Same course as Anat. 102, but with additional work of a more advanced nature.

Davis, Harne, Hard.

Anat. 203. Human Neurology. Number of credits by arrangement. Same course as Anat. 103, but with additional work of a more advanced nature. Prerequisite, Anat. 102 or 202.

Anat. 204. Research in Embryology, Histology or Neuro-Anatomy. Credit by arrangement. Open to students majoring in anatomy. Prerequisites, Anat. 201, 202 and 203.

Davis, Harne, Hard.

Anat. 205. Advanced Anatomy. Number of hours and credits by arrangement. Prerequisite, Anat. 101 or 201.

Uhlenhuth, Figge, Evans.

Anat. 206. Research in Gross Anatomy. Number of hours and credits by arrangement. Prerequisite, Anat. 205.

Uhlenhuth, Figge.

Anat. 207. Comparative Morphology of the Endocrines. Number of hours and credits by arrangement. Prerequisites, Anat. 201, 202.

Uhlenhuth.

- Anat. 208. Experimental Anatomy of the Endocrines.** Prerequisite, Anat. 207. Uhlenhuth.
- Anat. 209. Problems in Physiological Anatomy.** Prerequisites, Anat. 201, 202 and either 207 or 208. Uhlenhuth, Figge.

BACTERIOLOGY

Minors

- Bact. 101. General Bacteriology (5).** Sixteen lectures and 104 laboratory hours.
- Bact. 102. Immunology (4).** Sixteen lectures and 56 laboratory hours.

Majors

- Bact. 201. Special Problems.** Time and credit by arrangement.
- Bac. 202. Research.** Time and credit by arrangement.

BIOCHEMISTRY

Minors

- Biochem. 101. Principles of Biochemistry (8).** Seven lectures and conferences, and two three-hour laboratory periods a week for sixteen weeks. Prerequisites, inorganic, organic, and quantitative or physical chemistry. Wylie, Schmidt, Ogden, Weiland, Brown.

Majors

- Biochem. 201.** Prerequisite, Biochem. 101. Credit proportioned to extent and quality of work accomplished. Wylie, Schmidt, Weiland.
- Biochem 202. Research.** Credit proportioned to extent and quality of work accomplished. Wylie, Schmidt, Weiland.

PHARMACOLOGY

All students majoring in pharmacology with a view to obtaining the degree of Master of Science or Doctor of Philosophy should secure special training in anatomy, mammalian physiology, organic chemistry, and physical chemistry.

Minors

- Pharmacology 101 f. s. General Pharmacology (8).** Three lectures and one laboratory. This course consists of 90 lectures and 30 laboratory periods of three hours each, offered each year. Krantz, Carr, Evans, Musser, Harne, Wollenweber.

Majors

Pharmacology 202 f, s. General Pharmacology. Same as 101 for students majoring in pharmacology. Additional instruction and collecteral reading are required.

Krantz, Carr, Evans, Musser, Harne, Wollenweber.

Pharmacology 203. Chemotherapy. Credit in accordance with the amount of work accomplished. Krantz.

Pharmacology 204. Carbohydrate Metabolism. Credit in accordance with the amount of work accomplished. Krantz, Carr.

Pharmacology 205. Research. Credit in accordance with the amount of work accomplished. Krantz, Carr.

Pharmacology 206. Special Problems in Toxicology. Credit in accordance with the amount of work accomplished. Evans, Wollenweber.

Pharmacology 207. Anesthesia. Credit in accordance with the work accomplished. Krantz, Carr, Evans.

PHYSIOLOGY

FOR GRADUATES AND ADVANCED UNDERGRADUATES

Physiology 101. The Principles of Physiology (8). Five lectures, one conference, and two laboratory periods a week, for sixteen weeks, supplemented by demonstrations. Amberson and Staff.

FOR GRADUATES

Physiology 201. Experimental Mammalian Physiology. Time and credit by arrangement. Amberson, Smith, Oster.

Physiology 202. Water and Electrolyte Balance in the Vertebrate Body (1). One lecture a week, for sixteen weeks. Amberson.

Physiology 203. Humoral Control of Physiological Function (1). One lecture a week, for sixteen weeks. Smith.

Physiology 204. Electrophysiology (1). One lecture a week, for sixteen weeks. Oster.

Physiology 205. Cellular Respiration (1). One lecture a week, for sixteen weeks. Anderson.

Physiology 206. Seminar. Credit according to work done. Amberson and Staff.

Physiology 207. Research. By arrangement with the head of the department. Staff.

SCHOOL OF PHARMACY

BACTERIOLOGY

FOR GRADUATES AND ADVANCED UNDERGRADUATES

- Bact. 115. Serology and Immunology (6).** Three lectures and three laboratory periods a week, fall quarter. Grubb and Scigliano.

FOR GRADUATES

- Bact. 200, 201. Chemotherapy (1, 1).** One lecture a week, fall and winter quarters. Offered in alternate years. Grubb.
- Bact. 210. Special Problems in Bacteriology.** Laboratory course. Credit determined by amount and quality of work. Grubb.
- Bact. 221. Research.** Credit determined by amount and quality of work. Grubb.

BOTANY AND PHARMACOGNOSY

FOR GRADUATES AND ADVANCED UNDERGRADUATES

- Bot. 101, 102, 103. Taxonomy of the Higher Plants (2-6).** One lecture and one laboratory period a week, each quarter. Given in alternate years. Slama.
- Bot. 111, 112, 113. Plant Anatomy (2-6).** Two lectures a week, each quarter. Slama.,
- Bot. 111A, 112A, 113A. Plant Anatomy (2-6).** Two laboratory periods a week, each quarter. Prerequisites, Bot. 111, 112, 113. Slama,

FOR GRADUATES

- Pharmacognosy 201, 202, 203. Advanced Study of Vegetable Powders (4-12).** Two lectures and two laboratory periods a week, each quarter. Prerequisites, Bot. 111, 112, 113, and 111A, 112A, 113A. Slama.
- Pharmacognosy 211, 212, 213. Advanced Pharmacognosy (4-12).** Two lectures and two laboratory periods a week, each quarter. Prerequisite, Bot. 111, 112, 113, and 111A, 112A, 113A. Slama.
- Pharmacognosy 220. Research.** Credit according to amount and quality of work performed. Slama.

PHARMACEUTICAL CHEMISTRY

FOR GRADUATES AND ADVANCED UNDERGRADUATES

- Pharm. Chem. 111, 112, 113. Chemistry of Medicinal Products (6).** Three lectures a week. Prerequisites, Chem. 11. Hartung.
- Pharm. Chem. 114, 115, 116. Chemistry of Medicinal Products (2-6).** Two laboratory periods a week, one to three quarters. Hartung.
- Chem. 120B, 121B. Advanced Organic Laboratory (3-6).** Three laboratory periods a week, one or two quarters. Prerequisites, Pharm. Chem. 114, 115, 116, or equivalent. Starkey.
- Chem. 151, 152, 153. Physiological Chemistry (6).** Two lectures a week. Prerequisites, Chem. 11 and Physiology 23. Chapman.

Chem. 154, 155, 156. Physiological Chemistry (4-6). Two laboratory periods a week, two or three quarters. Prerequisites, Chem. 151, 152, 153. or may be taken simultaneously with Chem. 151, 152, 153.

Chapman, Gittinger, Foppe.

FOR GRADUATES

Pharm. Chem. 201, 202, 203. Survey of Pharmaceutical Chemistry (6). Two lectures a week. Prerequisites, Pharm. Chem. 111, 112, 113. Offered in alternate years. Hartung.

Chem. 207B. Organic Qualitative Analysis (3-5). Three to five laboratory periods a week. Prerequisites, Phar. Chem. 114, 115, 116, or equivalent. Starkey.

Pharm. Chem. 211, 212, 213. Chemistry of the Alkaloids (6). Two lectures a week. Prerequisites, Pharm. Chem. 111, 112, 113. Offered in alternate years. Hartung.

Pharm. Chem. 220. Advanced Pharmaceutical Syntheses (3-9). Laboratory and conferences. Prerequisite, Chem. 120B, 121B. Hartung.

Pharm. Chem. 222. Advanced Pharmaceutical Analyses (2-6). Laboratory and conferences. Prerequisite, Chem. 207B. Hartung.

Pharm. Chem. 230. Pharmaceutical Chemistry Seminar (1). Hartung et al.

Pharm. Chem. 235. Research. Credit determined by amount and quality of work performed. Hartung et al.

PHARMACOLOGY

FOR GRADUATES AND ADVANCED UNDERGRADUATES

Pharmacology 111. Official Methods of Biological Assay (4). Two lectures. and two laboratory periods a week, fall quarter. Prerequisites, Physiology 23, and Pharmacology 51, 52, 53. Chapman.

FOR GRADUATES

Pharmacology 201, 202, 203. Methods of Biological Assay (12). Two lectures and two laboratory periods a week, fall, winter and spring quarters. Prerequisite, Pharmacology 111. Offered in alternate years. Chapman.

Pharmacology 211, 212, 213. Special Studies in Pharmacodynamics (4-12). Two lectures and two laboratory periods a week, fall, winter, and spring quarters. Prerequisite, Pharmacology 51, 52, 53. Chapman.

Pharmacology 221, 222, 223. Special Studies in Biological Assay Methods (3-9). Laboratory work and conferences, fall, winter, and spring quarters. Prerequisites, Pharmacology 111, Pharmacology 201, 202, 203. Chapman.

Pharmacology 250. Research in Pharmacology. Properly qualified students may arrange quarter hours' credit with the instructor. Chapman.

PHARMACY

FOR GRADUATES AND ADVANCED UNDERGRADUATES

Pharmacy 101, 102, 103 (9). Two lectures and one laboratory a week. Pre-requisite, consent of the instructor. DuMez, Purdum.

Pharmacy 111, 112, 113. Advanced Prescription Compounding (2, 4, or 6). Two laboratory periods a week. DuMez, Purdum.

FOR GRADUATES

Pharmacy 201, 202, 203. Advanced Pharmaceutical Technology (12). Two lectures and two laboratory periods a week. DuMez.

Pharmacy 211, 212, 213. Survey of Pharmaceutical Literature (3). One lecture a week. DuMez.

Pharmacy 221, 222, 223. History of Pharmacy (6). Two lectures a week. Given in alternate years. DuMez.

Pharmacy 235. Research in Pharmacy. Credit and hours to be arranged. DuMez.

PHYSICS AND PHYSICAL CHEMISTRY

FOR GRADUATES AND ADVANCED UNDERGRADUATES

Chem. 102A, 103A, 104A. Physical Chemistry (9). Three lectures a week. Prerequisites, Phys. 11, 12, 13; Chem. 8 and 11. Estabrook.

Chem. 102B, 103B, 104B. Physical Chemistry (6). Two laboratory periods a week. Prerequisites, Chem. 102A, 103A, 104A, or may be taken simultaneously with these courses. Estabrook.

Phys. 101, 102. Thermodynamics (4). Two lectures a week. Given in alternate years. Prerequisites, Phys. 11, 12, 13; Math. 20, 21, 22; Phys. Chem. 102A, 103A, 104A, 102B, 103B, 104B. Estabrook.

Phys. 121, 122, 123. Electricity and Magnetism (9). Two lectures and one laboratory period a week. Prerequisites, Phys. 11, 12, 13; Math. 20, 21, 22. Given in alternate years. Estabrook.

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COLLEGE PARK CAMPUS

